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The effects of Motivation-Adaptive Skills-Trauma Resolution (MASTR) - Eye
Movement Desensitization and Reprocessing (EMDR) on traumatized adolescents
with conduct problems

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Cette thèse intitulée:
The effects of Motivation-Adaptive Skills-Trauma Resolution (MASTR) - Eye
Movement Desensitization and Reprocessing (EMDR) on traumatized adolescents
with conduct problems

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Abstract

Objective. This dissertation explored the effectiveness of a treatment package, Motivation-Adaptive Skills-Trauma Resolution (MASTR) in combination with Eye Movement Desensitization and Reprocessing (EMDR). This intervention was assessed in a sample of traumatized adolescents manifesting conduct problems (CPs) admitted to youth protective services. CP adolescents have been found to be particularly treatment-resistant and the treatments used with them often neglect to target the trauma that many of these youths have faced. Therefore, it seemed promising to implement a trauma-focused treatment with these youths that accounts for their resistance to treatment. MASTR-EMDR was studied with this population due to the favorable findings in the few studies assessing its use with high-risk populations. In addition to examining the effects of this treatment with CP youth exposed to various types of trauma, a particular focus was given to victims of sexual abuse (SA). This type of trauma seemed particularly suited for EMDR due to its circumscribed nature, which may be more easily worked through in this treatment that targets one trauma at a time.

Method. Participants in the first study were 40 adolescents (ages 13-17) exhibiting CPs and exposed to trauma in youth protective services. A subsample ($n = 30$), consisting of victims of SA, was included in the second study. Participants in both studies were randomly assigned to MASTR-EMDR treatment or to a wait list condition where they were offered routine care. Self-report questionnaires and semi-structured interviews were administered to participants and one of their parents or

caregivers by independent evaluators at three points in time: pre-treatment, post-treatment (12 weeks later) and follow-up (12 weeks after post-treatment). These measures evaluated trauma history, trauma-related sequelae, CPs, social competence and internalizing problems. The MASTR-EMDR sessions were administered once a week over a 12 week period, with each session lasting a maximum of 1.5 hours.

Results. ANCOVAs and repeated measures ANCOVAs were used to assess treatment effects and the maintenance of gains at a 3-month follow-up. As predicted, MASTR-EMDR led to significant gains in outcome measures compared to routine treatment with both samples. In addition, gains were maintained at follow-up.

Conclusions. This dissertation supports the use of MASTR-EMDR in populations exposed to general trauma and SA who exhibit CPs. This research was innovative in its implementation of a novel treatment-approach in youth protective services, where empirically-supported treatments are necessary and sometimes lacking. Therefore, the results have both clinical and scientific value and can help pave the way toward more trauma-focused treatments for CP youth, more evidence-based practices in youth protective services as well as enrich current understanding of the effects of this treatment approach.

Key words: trauma; conduct problems; EMDR; treatment outcome; youth; protective services; psychotherapeutic techniques

Résumé

Objectif de l'étude. Cette thèse avait pour but d'explorer un traitement combiné, soit le *Motivation-Adaptive Skills-Trauma Resolution* (MASTR) et le *Eye Movement Desensitization and Reprocessing* (EMDR). L'intervention fut évaluée auprès d'un échantillon d'adolescents traumatisés manifestant des troubles de comportements (TC) admis en Centres jeunesse. Ces adolescents s'avèrent particulièrement résistants aux traitements. De plus, les traitements utilisés auprès de cette population omettent souvent de cibler les traumatismes que bon nombre ont vécus. Ainsi, il semble prometteur d'implanter un traitement axé sur le traumatisme qui tente de pallier au problème d'inefficacité des interventions auprès de ces jeunes. Le MASTR-EMDR fut employé puisque les quelques études qui ont évalué ses effets ont obtenus des résultats encourageants chez les jeunes à risque. En plus d'examiner l'impact de ce traitement chez les jeunes présentant des TCs, ce projet s'est penchée plus spécifiquement sur les victimes d'agression sexuelle (AS). L'AS semble particulièrement bien s'appliquer à l'utilisation de l'EMDR en raison de sa nature circonscrite. Ainsi, il est prévu que le travail de résolution de ce traumatisme sera plus efficace.

Méthodologie. Les participants de la première étude sont 40 adolescents (âgés entre 13 et 17 ans). Un sous-échantillon ($n = 30$), composé de victimes d'AS, fut inclus dans la deuxième étude. Les participants des deux études furent répartis aléatoirement au traitement MASTR-EMDR ou à une liste d'attente où ils recevaient les soins habituels. Des questionnaires auto-rapportés et des entrevues semi-structurées furent administrés aux participants et à un de leurs parents ou tuteurs par des évaluateurs

indépendants à trois reprises : pré-traitement, post-traitement (12 semaines plus tard) et suivi (12 semaines après le post-traitement). Ces instruments ont permis d'évaluer l'histoire des traumatismes, les séquelles liées à ce dernier, les TCs, la compétence sociale et les problèmes internalisés. Les séances de MASTR-EMDR, d'une durée maximale de 1h30, eurent lieu une fois par semaine pendant 12 semaines.

Résultats. Des ANCOVAs et des ANCOVAs à mesures répétées furent employés pour évaluer les effets du traitement et le maintien des gains 3 mois plus tard. Tel que prévu, le MASTR-EMDR fut associé à une amélioration significative des symptômes comparativement au traitement habituel, et ce, dans les deux échantillons. De plus, les améliorations furent maintenues à la rencontre de suivi trois mois plus tard.

Conclusion. Cette thèse confirme l'efficacité du traitement MASTR-EMDR auprès de populations ayant subi une AS ou exposées à des traumatismes généraux qui manifestent des TCs. L'implantation d'une nouvelle approche de traitement en Centre jeunesse constitue une innovation majeure de cette étude, où les traitements validés empiriquement sont souvent absents. Ces résultats présentent des retombées cliniques et scientifiques importantes. Ils soulignent l'apport que peut présenter l'utilisation de traitements axés sur les traumatismes chez les jeunes ayant des TCs et les interventions validées empiriquement en Centre jeunesse. Finalement, les résultats ont permis l'enrichissement des connaissances sur les effets de ce traitement.

Mots clés : traumatisme; traitement; agression sexuelle; trouble de comportements; EMDR; Centres jeunesse; efficacité.

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List of abbreviations

CBCL	Child Behavior Checklist
CD	Conduct Disorder
CP	Conduct problems
CSA	Child sexual abuse
DISC	Diagnostic Interview Schedule for Children
DSM IV	Diagnostic and Statistical Manual of Mental disorders – fourth edition
EMDR	Eye Movement Desensitization and Reprocessing
LITE	Lifetime Incidence of Traumatic Events
MASTR	Motivation-Adaptive Skills-Trauma Resolution
MI	Motivational Interviewing
ODD	Oppositional Defiant Disorder
PTSD	Posttraumatic Stress Disorder
SA	Sexual abuse
TSCC	Trauma Symptom Checklist for Children
YPS	Youth protective services

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Introduction

The Diagnostic and Statistical Manual of Mental Disorders (DSM) describes trauma as an experience outside the scope of everyday human experience that would be notably distressing to anyone. Traumatic events are threatening and involve reactions of intense fear, helplessness or horror (APA, 1994). Children and adolescents are exposed to traumatic events ranging from child abuse, to fires and natural disasters.

Posttraumatic Stress Disorder (PTSD; APA, 1994) has generally been the disorder used by professionals to characterize trauma survivors. Exposure to trauma is said to lead to the principal PTSD symptoms, particularly (1) symptoms of persistent re-experiencing of the traumatic event, (2) persistent avoidance of the event, reminders of the event or general numbing and (4) persistent symptoms of increased arousal. However, some theorists and researchers have found that the sequelae of relational trauma, such as child maltreatment, are distinct from PTSD and have proposed alternate conceptualizations of these youths' post-trauma difficulties. Terr (1991) has distinguished between discrete traumatic events (Type I trauma) and longstanding and repeated traumatic events (Type II trauma). Herman (1992a; 1992b) has conceptualized the problems resulting from longstanding repetitive abuse as Complex PTSD and, most recently, van der Kolk and Courtois (2005) conceptualized these problems in a developmental framework as Pervasive Developmental Disorder. Child abuse is a type of trauma that affects a large proportion of children and adolescents. According to the most recent count, a total of 826,000 cases of child abuse were found to be substantiated in the United States (Leventhal, 2003) whereas 60,980 were found to be substantiated in Canada (Trocmé & Wolfe, 2001). These large numbers

suggest that a significant group of children and adolescents (especially when considering unreported cases) face one or more traumatic experiences that can modify their normal development.

Effects of Maltreatment

Child sexual abuse. Among types of child maltreatment, child sexual abuse (CSA) has been the focus of numerous studies. The Canadian Incidence Study of Reported Child Maltreatment found that CSA represents 10% of total reported cases of maltreatment and that CSA affects .93 of 1,000 reported children (Trocmé, Tourigny, MacLaurin, & Fallon, 2003). An incidence study conducted in Quebec found similar incidence rates; it found that CSA affects .9 of 1,000 reported children (Tourigny, Mayer, Wright, Lavergne, Hélie, S., & Trocmé, 2002).

It is well established that CSA leads to both short- and long-term mental health sequelae (Kendall-Tackett, Williams & Finkelhor, 1993; Putnam, 2003). Studies examining CSA among adolescents have noted symptoms of depression, anxiety, posttraumatic stress, aggression, anger, dissociation, relational problems, suicidality and internalizing and externalizing behaviors (Beitchman, Zucker, Hood, DaCosta & Akman, 1991; Green, Russo, Navratil & Loeber, 1999; Nelson, Heath, Madden, Cooper, Dinwiddie, Bucholz et al., 2002; Paolucci, Genuis & Violato, 2001; Ruggiero, McLeer & Dixon, 2000; Silverman, Reinherz & Giaconia, 1996).

All types of maltreatment. Many studies have also examined the effects of various types of maltreatment on children and adolescents (i.e., sexual, physical and emotional abuse) which have been compared and synthesized in meta-analyses and literature reviews. These studies have noted various problems among these youths, such as dependency, problematic attachment relationships (Cicchetti & Toth, 2005), affective difficulties, internalizing problems, antisocial tendencies, aggression, externalizing problems (Cicchetti & Toth, 2005; Margolin & Gordis, 2000) and poor school adaptation (Cicchetti & Toth, 2005; Margolin & Gordis, 2000; Veltman & Browne, 2001). However, all maltreated children do not develop all of these difficulties and some maltreated children develop normally (Kendall-Tackett et al., 1993). In addition, although no specific syndrome regroups the effects of maltreatment, many youth develop difficulties that are typically found in youth with conduct problems.

Trauma and Conduct Problems

Problems with anger and aggression often result from children's traumatic experiences. "Acting out" problems are discussed in the literature under three headings: delinquency, defined as conduct that is out of accord with accepted behavior or the law (Merriam-Webster Medical Dictionary, 2002), conduct problems (CP), which refers to the realm of disruptive behavioral problems, and Conduct Disorder (CD), a psychiatric disorder characterized by a persistent pattern of conduct in which the basic rights of others and major age-appropriate societal norms or rules are violated (p. 93, APA, 2000)."

A diathesis-stress model of CPs has been delineated by Farrington (2005). He pinpoints constitutional predispositions to CPs that have been found in the literature, such as temperament, personality, low IQ and school achievement. These predispositions in interaction with environmental stressors such as child rearing, parental conflicts and disrupted families, antisocial parents, low socioeconomic status, large family size, peer, school and community influences as well as trauma lead to CPs. These multiple risk factors in combination predict antisocial behaviour, according to Farrington, while the extent that any particular risk factor predicts CPs is unclear. Nonetheless, as one specific risk factor may predict various nefarious outcomes, addressing one factor, such as trauma, may be beneficial in reducing a variety of problems.

Recent theory and research has outlined the link between trauma and CPs (Greenwald, 2002c; Widom, 1994). Widom (1994) reviews potential mechanisms that may explain the relationship between them. She focuses on abuse characteristics like (a) the immediate and long-lasting effects (e.g., brain injury), (b) bodily changes (e.g., desensitization to pain), (c) maladaptive coping styles (e.g., dissociation), (d) altered self-concept, attitude and attributions as well as (e) changed family environments, such as being placed in foster care, which labels victims, isolates them from prosocial peers & encourages them to associate with delinquent peers. Greenwald (2002b) highlights findings that a high proportion of victims of violence later become perpetrators, that the prevalence of CP among traumatized youth is high

and that posttrauma symptoms overlap with CP symptoms. An ecological framework incorporates not only the home, but the community and general culture in understanding how children may learn violent behaviors (Jonson-Reid, 1998).

Empirical investigations also provide support for the high prevalence of trauma among individuals with behavioral problems; rates of PTSD range from 17 to 65% in samples of male and female juvenile offenders, incarcerated youth or youth with CPS as measured either by clinician judgments or semi-structured interviews (Cauffman, Feldman, Waterman, & Steiner, 1998; McMackin, Leisen, Cusack, LaFratta, & Litwin, 2002; Reebye, Moretti, Wiebe, & Lessard, 2000; Steiner, Garcia, & Matthews, 1997). However, the rates of traumatic experiences in the same samples are exponentially larger than the rates of PTSD, ranging from 56 to 95%. These youths' acting-out behaviors may represent an alternative to the development of PTSD symptoms, in that their post-traumatic stress is managed in another way (Cohen, 1998).

The role of Youth Protective Services

Youth protective services (YPS) has the role of ensuring the rights of youths, such as traumatized adolescents. Many adolescents are referred to YPS every year due to maltreatment; the numbers of youth referred in 2001 are indicated in the parentheses: neglect (15,946), physical abuse (4,011), sexual abuse (5,647) and parental abandon (423; Association des Centres Jeunesse du Québec, 2002). In addition to protecting maltreated youth, YPS also has the role of protecting youth with problematic

behavior, such as delinquent youth. Based on the high rates of trauma among CP youth in other settings, an overlap may exist between traumatized and CP youth in YPS as well.

The services offered by YPS include educative assistance, psychological treatment, psychiatric treatment, substance abuse intervention and readjustment in natural and closed settings. However, the current interventions used by YPS in Quebec are not offered systematically and have been found to be insufficient and sometimes questionable as they are not necessarily empirically founded (Association des centres jeunesse du Québec, 2002). However, Toupin, Pauzé and Déry (2005) found significant improvements among CP youth one year after admission to YPS. As mentioned by the authors, the improvements were not significantly associated with the intensity of services offered to the youth and may not be directly associated with the effects of the interventions offered as no comparison group was used. Therefore, it is important to implement comparison treatments to assess the effects of the routine treatment offered.

Due to the significant trauma experienced by CP youths, a treatment specifically aimed at reducing posttrauma sequelae may substantially contribute to the treatment strategies currently offered that aim to improve these youths' outcome. MASTR-EMDR is a new approach that may be effective in treating traumatized youth with CPs. MASTR-EMDR combines a trauma-focused treatment (EMDR) with a

treatment package incorporating empirically-validated strategies for CP youth (MASTR). This treatment will be described in the following paragraphs.

EMDR

Eye-Movement Desensitization and Reprocessing (EMDR) is an information processing therapy that is used to work through traumatic memories (Shapiro, 2001). EMDR was discovered by Shapiro when she realized that certain disturbing thoughts ceased to recur or disturb her after she thought of them whilst simultaneously doing saccadic eye movements. She tested this method with colleagues and then began conducting empirical trials, which culminated in the development of a complex methodology to help clients with their troubling memories.

Various procedural elements are incorporated into the EMDR method. Alternating bilateral stimulation is generally practiced by having clients follow their therapist's finger with their eyes, yet other forms of stimulation (e.g., auditory stimulation) can be used if a client finds the eye movements to be difficult. In addition to alternating bilateral stimulation, EMDR incorporates guided imagery, perceived reduction in emotional disturbance, attention to physical sensation, cognitive reframing, alignment of memory components and free association techniques.

Briefly, those suffering from traumatic memories visualize their past traumatic events, while simultaneously making systematic saccadic eye movements (or another form of alternating bilateral stimulation). They are asked to state if they are feeling

any uneasy or uncomfortable bodily sensations and if they affirm previously made cognitive self-appraisals. Their distress levels are also rated after they imagine each event. EMDR can be used to reprocess multiple memories, but the process inevitably takes more time. The EMDR method has been extended from traumatic memory treatment to treatments of various other psychological problems, such as personality disorders, Panic Disorder, pain and learning disabilities.

The EMDR protocol consists of eight phases. The first two phases prepare clients for working through their traumatic memories and are generally completed in several sessions. Phases 1 and 2 consist of an in-depth evaluation of the client's individual history, a treatment plan (including targets for EMDR) and preparation for treatment, which includes stating goals and expectations and developing a therapeutic relationship.

The remaining phases occur with each EMDR target. Trauma assessment (phase 3) includes identifying (visually, cognitively, emotionally and through body sensations) the EMDR target(s) that will be worked through in the subsequent phases. Phases 4 to 6 are the core of the treatment and consist of the "reprocessing" element. In the desensitization and reprocessing phase (4), traumatic events are first visualized during alternating bilateral stimulation. Subsequently, clients are asked to describe what emerged (free associations), a process which repeats itself until clients report no distress associated with the memory. Installation (phase 5) includes integrating previously identified positive or adaptive cognitions by focusing on that cognition

during alternating bilateral stimulation, followed by free association repetitions until clients report that they believe it to be true. In the body scan phase (6), bodily sensations are described and alternating bilateral stimulation and free associations repeat until clients report no feelings of tension or discomfort.

Phases 7 to 8 ensure that the trauma has been effectively processed. Closure (phase 7) insures client stability at the end of the session (whether or not the target was completely processed). Target eliciting and review of progress (phase 8) occurs at the start of the next session, where clients review their previous target.

Theoretical support for EMDR

Several theories have been proposed that account for the effects of EMDR. Shapiro (2001) developed the adaptive information processing model to account for the effects of EMDR. She explains that normal memories are adaptively processed, in that useful elements are extracted (e.g., being careful in high risk situations) and destructive elements are discarded (e.g., irrational cognitions) in order to efficiently manage future events. Moreover, normal memories are said to be inaccurately stored in a developmental sequence, like a story. In contrast, traumatic memories are not adaptively processed. They are disconnected (unlike a story, sensory and emotional experience are fragmented), which may explain disorientation when approached by an element reminiscent of the traumatic event.

The interpersonal neurobiology perspective (Siegel, 2003) argues that the mind is shaped by interpersonal experience in conjunction with neurobiological processes. Trauma is stipulated to result in impaired information processing between hemispheres. Furthermore, traumatized children's brain anatomy has been found to vary from the brain anatomy of untraumatized children (De Bellis, Baum, Birmaher, Keshavan, Eccard et al., 1999a, De Bellis, Keshavan, Clark, Casey, Giedd et al., 1999b). Trauma is postulated to lead to altered brain anatomy (for examples, see Siegel, 2003), affecting traumatized children. This affects their experience of posttrauma sequelae, the altered processing of general events in their lives, and prevents them from understanding events and expressing themselves in a coherent and holistic fashion. Some support for this neuronal hypothesis was found in positron emission topography (PET) trials that found that after three EMDR sessions, asymmetry in the lateralization of the traumatized brain was corrected (van der Kolk, Burbridge, & Suzuki, 1997).

Hyer and Brandsma (1997) argue that the effects of EMDR stem from including the curative components of various therapies. The authors of another study found that eye movements are associated with reductions in electrodermal arousal after elicitation of a negative autobiographical memory, suggesting that the effect is caused by relaxing clients with alternate stimulation while processing traumatic memories (Barrowcliff, Gray, Freeman, & MacCulloch, 2004).

EMDR Research with Adults

Hundreds of studies have been conducted that assess the effectiveness of EMDR among adult populations with traumatic memories. Four meta-analyses have synthesized the results of these studies; two meta-analyses compared EMDR studies and two compared various PTSD treatments. In their meta-analysis of EMDR, Davidson and Parker (2001) found that EMDR is superior to no treatment ($ES\ r = .44, p < .01$), non-specific trauma treatment ($ES\ r = .40, p < .01$), and is comparable to other effective treatments such as exposure-based treatments ($ES\ r = .19, p > .05$) and cognitive-behavioral treatments (CBT, $ES\ r = -.28, p > .05$). In their meta-analysis, Maxfield and Hyer (2002) distinguished between studies with high and low methodological rigor, according to Foa and Meadows' (1997) criteria for a gold standard. They found a high effect size ($r = 1.57, p < .05$) for EMDR studies with strong methodological rigor and a medium effect size ($r = .21, p < .05$) for EMDR studies with weak to medium methodological rigor.

In Van Etten and Taylor's (1998) meta-analysis of PTSD treatments, EMDR was found to be an effective treatment for PTSD ($ES\ r = 1.24, p < .05$), with a similar effect size to CBT ($ES\ r = 1.27, p < .05$) and a superior effect size to other psychological ($ES\ r = .45-.90, p < .05$) or pharmacological treatments ($ES\ r = .69, p < .05$). EMDR was also found to be more efficient than CBT as results were produced with an average of 4.6 sessions as opposed to 14.8 sessions. Another meta-analysis also compared PTSD treatments and found similar results (Bradley, Greene, Russ,

Dutra, & Westen, 2005), namely that EMDR ($ES\ r = 1.43, p < .05$), exposure-based treatment ($ES\ r = 1.57, p < .05$) and CBT ($ES\ r = 1.65, p < .05$) were all found to be effective for treating PTSD.

EMDR research with children and adolescents

Fewer studies assessing EMDR with children or adolescents have been conducted, yet the extant research provides initial support for its effectiveness. Only five studies used treatment comparison and wait list methods. A wait-list method was used to examine one session of EMDR among 20 traumatized children and adolescents (Puffer, Greenwald, & Elrod, 1998). Treatment comparison designs were used to compare two sessions of EMDR to two sessions of active listening among 60 females engaging in high-risk behaviors aged between 16 and 24 (Scheck, Schaeffer, & Gillette, 1998) and to compare the effects of a maximum of 12 sessions of either EMDR or CBT with 14 sexually abused Iranian girls (Jaberghaderi, Greenwald, Rubin, Zand, & Dolatabadi, 2004). A wait list design was used in the comparison of standard care and standard care with three sessions of EMDR among 29 boys with CPs in residential or day treatment (Soberman, Greenwald, & Rule, 2002) and in the assessment of four EMDR sessions for disaster-related PTSD among 32 Hawaiian children exposed to Hurricane Iniki (Chemtob, Nakashima, & Carlson, 2002).

Five studies used a case report method. Cocco and Sharpe (1993) reported using one session of EMDR with a four-year old child. Pellicer (1993) also described a single session of EMDR with a 10 year old girl with nightmares. Greenwald (1994) reported

five case studies in which one to two sessions of EMDR were offered to traumatized children. Tufnell (2005) presented four case studies of pre-adolescents with PTSD who were offered between two to four sessions of EMDR. Finally, Datta and Wallace (1996) examined the effects of three EMDR sessions with 10 institutionalized sex offenders. These case studies support the use of EMDR.

The research to date therefore provides initial support for EMDR use with traumatized youth. These studies conducted among children and adolescents found significant improvements after EMDR on PTSD symptoms (Chemtob et al., 2002; Greenwald, 2002a; Jaberghaderi et al., 2004; Soberman et al., 2002; Tufnell, 2005), related problems or distress (Greenwald, 1994; Greenwald, 2002a; Soberman et al., 2002), anxiety (Chemtob et al., 2002; Maxwell, 2003), depression (Chemtob et al., 2002), problem behavior (Greenwald, 2002a; Soberman et al., 2002), school performance (Greenwald, 2002a), self-esteem (Maxwell, 2003) and nightmares (Pellicer, 1993). However, three studies found conflicting results. The first did not find significant results for EMDR treatment offered to youth without a circumscribed traumatic event (Rubin, Bischofshausen, Conroy-Moore, Dennis, Hastie et al., 2001) and the other two found limited support for EMDR offered to spider-phobic children (Muris, Merckelbach, Holdrinet, & Sijsenaar, 1998; Muris, Merckelbach, van Haaften, & Mayer, 1997). This treatment therefore seems to be promising for trauma victims and would benefit from being empirically examined among traumatized YPS youth. However, due to the difficulties of CP youth in engaging in treatment, it would be beneficial to add a motivational element to EMDR, such as the MASTR treatment.

MASTR

The MASTR (Motivation – Adaptive Skills – Trauma Resolution) treatment approach was developed to account for the resistance to treatment frequently found among adolescents with CPs (Greenwald, 2000; Greenwald, 2002a). Youth with CPs are often unwilling to partake in therapy, have trust issues, anger toward adults, hypersensitivity to and avoidance of trauma-related stimuli and a desire for immediate gratification, which provide obstacles to treatment success. Treatments for these youths often consist of parent management training (McCart, Priester, Davies, & Azen, 2006) and/or cognitive behavioral therapy, which have both been found to have small to moderate effect sizes (Bennett, & Gibbons, 2000; McCart et al., 2006). Due to the paucity of research on MASTR, it seemed valuable to examine its effectiveness with this sample.

Prior to trauma resolution, MASTR focuses on establishing a sense of motivation and mastery in these clients and creating a therapeutic alliance with them. This is accomplished with the amalgamation of various treatment approaches in one trauma-focused treatment package. The empirically validated therapeutic strategies integrated into MASTR include motivational interviewing, cognitive-behavioral training, coping skills development and trauma resolution (for more details see Greenwald, in press).

Motivational interviewing (MI) is used to help motivate clients to desire change. This strategy involves active listening, highlighting ambivalence between current and

desired behaviour, supporting clients' sense of mastery and self-efficacy, avoiding argumentation and acknowledging resistance. The use of MI for involuntary clients has been advocated although research on MI is most prolific for problems of substance abuse and dependence (Miller, 1996). Cognitive-behavioral training and coping skills development is used to increase self-awareness and promote self-monitoring and self-control. These strategies have been supported empirically in traumatized and CP populations (Cohen, 1998; Kazdin, 1997). Guided imagery techniques are used in MASTR to promote desired behaviors and have also been supported empirically (Taylor, Pham, Rivkin, & Armor, 1998). Trauma resolution (in this protocol, EMDR) has been highlighted as essential to treating traumatic experiences (Cohen, 1998).

The MASTR treatment approach starts with an evaluation in which rapport is established, history is assessed, the client is guided to identify short- and long-term goals, visualize a positive future including constructive actions leading to a happy ending; and also visualize the unwanted alternative, an unhappy ending. This is followed by a case formulation and treatment planning session in which the client commits to working towards the positive goals. Subsequently, clients are taught self-management skills, including one session on avoiding high-risk situations and multiple sessions using imaginal rehearsal of behavioral choices, on each occasion connecting the poor self-control choice with the unhappy ending, and the effective self-control choice with the happy ending. Finally, the last sessions are devoted to trauma resolution, which may use EMDR. EMDR begins with recent minor upsetting

events so that clients are introduced to EMDR under low stress, and highly traumatic events are only processed afterwards.

MASTR research

One series of case studies on the MASTR treatment has found that adolescents treated with this intervention showed positive improvements and outcomes (Greenwald, 2002a). Thus, an empirical trial using a control group for systematic comparisons is warranted.

Objectives

The current dissertation examined the effectiveness of the MASTR-EMDR treatment in YPS. As EMDR has generated much research in adult populations and very little in adolescent populations, there is great utility in testing its use with adolescents. In addition, this research protocol has great clinical significance as it targets individuals in YPS, who need valid and effective treatments. As such, this study also addresses the clinical research gap, a grave problem in the implementation of evidence-based practice in practice-oriented settings.

The first objective of this dissertation was to evaluate the effectiveness of the MASTR-EMDR intervention compared with the routine treatments by targeting the traumas experienced by adolescents with CPs in YPS and assessing whether these effects are maintained over time. The second objective was to assess whether MASTR-EMDR led to improved outcome among the adolescents in the sample who were sexually abused compared with the routine YPS treatments.

The current dissertation consists of two scientific articles. I am the first author of both articles as I developed the idea for this project, was responsible for the organization of the project, data collection and analysis, literature reviews and article organization. Mireille Cyr is the second author as she supervised all steps of the process described above. Thomas Lebeau and Jacques Lemay are the third and fourth authors as they helped develop and carry out this research project as the MASTR-EMDR therapists. Pierre McDuff is the fifth author of the second article due to his critical input, which improved the quality of the paper.

The first article compares MASTR-EMDR to the routine treatments for youth in YPS who were exposed to various forms of traumatic events. This article has been submitted for publication to the journal "Child Abuse & Neglect." The second article compares the same treatments but only for sexually abused youth. This article has been accepted for publication to the "Revue Québécoise de Psychologie."

Article 1

Effectiveness of MASTR-EMDR therapy for traumatized adolescents with conduct
problems

Leechen Farkas, Mireille Cyr, Thomas Lebeau and Jacques Lemay

Abstract

Objective: The current study examined MASTR-EMDR, a trauma-focused treatment package for traumatized youth with conduct problems. Its effectiveness was assessed post-treatment and at a 3-month follow-up.

Methods: Participants were 40 adolescents (ages 13-17) exhibiting conduct problems and exposed to trauma in youth protective services. Participants were randomly assigned to MASTR-EMDR treatment or to a wait list condition where they were offered routine care. Self-report questionnaires and semi-structured interviews were administered to participants and one of their parents or caregivers by independent evaluators at three points in time: pre-treatment, post-treatment (12 weeks later) and follow-up (12 weeks after post-treatment). These measures evaluated trauma history, trauma-related sequelae, conduct problems, social competence and behavioral difficulties. The MASTR-EMDR sessions were administered once a week over a 12 week period, with each session lasting a maximum of 1.5 hours.

Results: ANCOVAs showed that participants in the experimental group had significant improvements in their trauma symptoms and behavioral problems compared with the control group at the post-treatment evaluation. Repeated measures ANCOVAs showed that these effects were maintained at a 3-month follow-up.

Conclusions: Results support MASTR-EMDR, a manualized treatment that can be readily implemented with traumatized youth with conduct problems.

Introduction

The treatment of adolescent conduct problems (CPs) has typically focused on behavioral symptoms, yet researchers and theorists have begun to identify trauma as a significant factor underlying CPs in many cases. Given the field's continued lack of success in treating this population (Greenwald, in press), it would be beneficial to assess whether a trauma-focused treatment modality would improve overall treatment outcome.

Exposure to trauma

According to the DSM IV, a traumatic event is one that is outside everyday human experience and would be notably distressing to anyone. To experience trauma, one must be faced with an event threatening to oneself or to another and react with feelings of intense fear, helplessness or horror (APA, 2000).

Child maltreatment (i.e., sexual, physical and emotional abuse and neglect) accounts for a large proportion of cases of childhood trauma and has high incidence rates. Recent yearly counts show that 826,000 cases of maltreatment were substantiated in the United States (Leventhal, 2003) whereas 60,980 were substantiated in Canada (Trocmé & Wolfe, 2001) . These numbers suggest that a significant number of children and adolescents face traumatic experiences that can modify their normal development.

Problem Behaviors Following Exposure to Trauma

Meta-analyses and literature reviews have compared studies examining the effects of maltreatment on youth. Problems include dependency, problematic attachment relationships (Cicchetti & Toth, 2005), affective difficulties, internalizing problems, antisocial tendencies, aggression, externalizing problems (Cicchetti & Toth, 2005; Margolin & Gordis, 2000) and poor school adaptation (Cicchetti & Toth, 2005; Margolin & Gordis, 2000; Veltman & Browne, 2001).

Several theorists have focused on the relationship between trauma and CPs (Dodge, Bates, & Pettit, 1990; Greenwald, 2002b; Heide & Solomon, 2006; Jonson-Reid, 1998; Kaufman & Widom, 1999; Widom, Schuck, & White, 2006). Greenwald (2002b) highlights the role of trauma in developing CPs “since a) violence begets violence, b) youth with CPs have high rates of trauma history and trauma symptoms and c) trauma leads to many cardinal features of CPs (p.6).” These features include reduced inhibitions and impaired social competence that may result from the hyperarousal, trust violation and intense negative emotions that occur following trauma (Dodge et al., 1990; Greenwald, 2002b). Widom and her colleagues also examine moderating or mediating variables from childhood victimization to juvenile delinquency, such as running away (Kaufman & Widom, 1999) and problematic alcohol use (Widom et al., 2006). Jonson-Reid (1998) adopts an ecological framework (i.e., trauma at home, in the community or in the general culture) in her understanding of children “learning” to be violent through observation or direct experience. Heide & Solomon (2006) discuss the neurobiological effects of trauma

and highlight difficulties in regulating emotion and making adaptive decisions, leading to high risk for emotional outbursts that can lead to violence.

Empirical studies investigate the link between trauma and CPs as measured by clinicians and semi-structured interviews. Results show that juvenile offenders have high rates of traumatic experiences ranging from 56 to 95% (Burton, Foy, Bwanausi, Johnson, & Moore, 1994; Cauffman, Feldman, Waterman, & Steiner, 1998; McMackin, Leisen, Cusack, LaFratta, & Litwin, 2002; Steiner, Garcia, & Matthews, 1997).

Disorders Following Exposure to Trauma

Difficulties ensuing from trauma have often been considered under the Posttraumatic Stress Disorder nomenclature (PTSD: APA, 2000). PTSD includes symptoms of re-experiencing, avoidance, general numbing and increased arousal. These symptoms often result from children's exposure to trauma (Boney-McCoy & Finkelhor, 1995; Weine, Becker, Levy, Edell, & McGlashan, 1997).

Some studies have found a link between trauma and Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD), yet more studies focus on CP symptoms rather than disorders. This may be linked to the low use of the DSM among the health professionals working with these youths (Bowers, 1990). ODD is characterized by a "pattern of negativistic, hostile, defiant, disobedient, and hostile behavior toward authority figures (p.100, APA, 2000)." ODD has been found to be associated with trauma history (Ford, Racusin, Daviss, Ellis, Thomas et al., 1999) and to a comorbid

PTSD diagnosis (Ford, Racusin, Ellis, Daviss, Reiser et al., 2000) compared with Attention Deficit Hyperactivity Disorder and adjustment disorder. High rates of ODD have also been found among child victims of sexual abuse (Merry & Andrews, 1994).

CD is defined as a “repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated (p. 93, APA, 2000).” Among other disorders, a history of physical abuse (Flisher, Kramer, Hoven, Greenwald, Alegria, et al., 1997) and sexual abuse (Merry & Andrews, 1994; Sirles, Smith, & Kusama, 1989) have been found to be associated with both CD and ODD. In one study that specifically assessed trauma and PTSD in youth with CD, over half of the sample experienced trauma (56%), with 17% meeting criteria for PTSD (Reebye, Moretti, Wiebe, & Lessard, 2000).

The role of Youth Protection

Many traumatized adolescents are referred to youth protective services (YPS). YPS ensures the care of youth in cases of maltreatment, high risk of maltreatment and problematic childhood behavior (e.g., truancy, delinquent behaviors). Youth are placed in foster homes or residential facilities when the problems cannot be addressed in their home (Tourigny, Mayer, Wright, Lavergne, Trocme, Helie, et al., 2003).

In 2001, 15,946 adolescents were referred to YPS in Quebec due to neglect, 4,011 were referred following physical abuse, 5,647 were referred following sexual abuse and 423 were referred following parental abandon (Association des Centres Jeunesse

du Québec, 2002). Many of these traumatized adolescents exhibit various behavioral problems. The services YPS offers include educative assistance, psychological, psychiatric and substance abuse intervention as well as readjustment in natural and closed settings. However, the current interventions are not offered systematically and have been found to be sometimes insufficient as well as sometimes questionable as they are not necessarily empirically founded (Association des Centres Jeunesse du Québec, 2002).

Youth living in YPS facilities have been found to have poorer physical health than children newly entering YPS facilities who received community-based services (Horwitz, Owens, & Simms, 2000), mental health than community and clinical samples (Stein, Evans, Mazumdar, & Rae-Grant, 1996) and academic achievement than a non-matched but demographically similar sample (Sawyer, & Dubowitz, 1994). However, many of these differences may have existed prior to placement rendering it impossible to judge the effects of the placement itself.

Some studies have compared youth placed in YPS to comparable samples and have found more difficulties among placed youth. They were found to have more behavioral and emotional problems (Kortenkamp, & Ehrle, 2002), to be less likely to pursue further education, to be less engaged and have more difficulties in school than matched or high-risk youth (Blome, 1997; Kortenkamp, & Ehrle, 2002). They were also found to use more health services than youth subsequently placed in YPS or youth whose families were receiving aid (Bilaver, Kienberger Jaudes, Koepke, &

George, 1999). In contrast, adults previously placed in YPS who were compared to matched adults and a random sample of adults were found to be less well-adjusted than the non-matched adults but to have a similar profile to the matched sample (Buehler, Orme, Post, & Patterson, 2000). Placed maltreated youth were also not found to have increased risk of delinquency compared to matched youth left at home (Desmond, & Gould, 1985). In addition, placed children who were reunified with their families were found to have more negative outcomes than children who did not reunify (Taussig, Clyman, & Landsverk, 2001). Therefore, data on placed youth is either correlational or mixed, thereby leaving the effects of YPS placement on youth ambiguous.

Addressing Trauma in the Treatment of YPS Youth

Eye movement desensitization and reprocessing (EMDR) is a trauma-focused intervention based on the adaptive information processing model (Shapiro, 2001). It posits that traumatic memories are not properly stored like other memories, whose associations form the basis of learning. The goal of EMDR is to “forge new connections between unprocessed memory and more adaptive information that is contained in other memory networks (p. 199, Shapiro & Maxfield, 2003). EMDR has been defined both as a method (Shapiro, 2001) – essentially a phase model of a trauma-focused treatment (Greenwald, 2007) – and as a procedure that has been extensively researched and identified as a trauma treatment of choice (Bisson & Andrew, 2007). The EMDR method minimally entails obtaining a trauma history from the client, developing a treatment plan including choosing traumatic memories

to process, choosing the order to process these memories, preparing the client for the procedure, processing the memories, providing closure and reevaluating previous work (Shapiro, 2001).

Preparation generally consists of identifying targets of work (i.e., the traumatic memory), the most vivid image associated with each target, a negative belief and preferred positive about the self (which is rated), a related emotion (which is rated as well) and body sensations. Briefly, to process traumatic memories, clients concentrate on the worst moment of their selected trauma while moving their eyes back and forth by following the therapist's moving fingers (other methods of alternating bilateral stimulation, including taps on alternate hands are used when eye movements prove difficult for a client). Subsequently, clients are asked to report what came into awareness, such as images, thoughts, emotions, or physical sensations. The focus of the next set is determined by the client's changing status. For example, if the client reports feelings of anger, the therapist may suggest concentrating on the anger in the next set. This procedure is repeated until the client reports no further memory-related distress. The clients are then asked to focus on the traumatic memory while thinking about the previously identified positive belief (or a new one) along with alternate bilateral stimulation. This is also repeated until clients report increased confidence in the belief. Finally, negative body sensations are also processed in the same manner whereas positive sensations are enhanced.

EMDR only requires brief bursts of exposure, the client is not required to disclose details of the trauma, homework is not required (Shapiro, 2001), neither insight nor intelligence are required (Greenwald, 1999; Seubert, 2005) and EMDR has outperformed other empirically-supported trauma treatments, at least with youth (de Roos, Greenwald, de Jongh, & Northoorn, 2008; Jaberghaderi, Greenwald, Rubin, Zand, & Dolatabadi, 2004; Wanders, Serra, & de Jongh, in press).

Indeed, youth have done quite well with EMDR, with rapid reduction or elimination of trauma symptoms as reported in case reports (Cocco & Sharpe, 1993; Greenwald, 1994; Pellicer, 1993; Tufnell, 2005), group studies (Puffer Greenwald, & Elrod, 1998; Chemtob, Nakashima, & Carlson, 2002) and the controlled comparison studies noted above (de Roos et al, 2008; Jaberghaderi et al, 2008; Wanders et al, in press). Several EMDR studies are of particular interest for our population. In a case series, Datta and Wallace (1996) provided three EMDR sessions to 10 adolescent male institutionalized sex offenders, who showed post-treatment increases in empathy and school performance; also several participants spontaneously initiated attempts to provide restitution to their victims. Scheck, Schaeffer and Gillette (1998) compared two sessions of EMDR to active listening for 60 girls/young women (ages 16-24) engaged in high-risk behaviors (e.g., prostitution, substance abuse); the EMDR group was significantly better on all measures, especially at follow-up. Soberman, Greenwald and Rule (2002) compared standard care to standard care plus three sessions of EMDR among 29 boys with CPs in residential/day treatment and found

that compared to standard care, EMDR led to significantly reduced trauma symptoms and primary presenting problem behaviors.

In contrast, two studies found limited support for EMDR when used with spider phobic children (Muris, Merckelbach, Holdrinet, & Sijsenaar, 1998; Muris, Merckelbach, van Haaften, & Mayer, 1997) and one study did not find that EMDR improved outcomes for children and adolescents with a variety of presenting problems in a child guidance center (Rubin, Bischofshausen, Conroy-Moore, Dennis, Hastie, Reeves, & Smith, 2001).

Despite the mostly favorable findings on EMDR with youth, it is particularly challenging to get CP adolescents to engage in therapy and especially trauma resolution, as they may (a) have low motivation for treatment, (b) believe that benefit is unlikely, (c) mistrust adults and (d) have low affect tolerance, avoid emotion and the trauma memory (Greenwald, in press). These difficulties are exacerbated by behavioral problems, which are associated with a lack of insight regarding one's problems, fears of losing one's freedom and being controlled (Sommers-Flanagan & Sommers-Flanagan, 1995). As such, trauma-focused treatment for CP youth should address these obstacles.

Greenwald (in press) developed a manualized comprehensive trauma-focused treatment package for use among adolescents with CPs, called Motivation – Adaptive Skills – Trauma Resolution (MASTR). This approach aims at treating the trauma of

CP adolescents that addresses treatment obstacles by establishing a sense of safety within therapy, encouraging clients to be the agents of their change, improving motivation and guiding them toward progressive successes to their goals. It incorporates a sequence of empirically validated therapeutic strategies including motivational interviewing, cognitive-behavioral training, coping skills development, trauma resolution, and relapse prevention/harm reduction in a phase model treatment approach. Although the MASTR protocol does not specify which treatment should accomplish trauma resolution, EMDR was also used in the previous MASTR studies (for more details see Greenwald, in press).

Motivational interviewing (MI) incorporates empathic listening, developing a discrepancy between desired and current behavior, avoiding argumentation, acknowledging resistance, emphasizing the power of choice and supporting self-efficacy. Empirical evidence of MI is abundant for substance abusing populations (Miller, 1996) and is argued to be useful for all involuntary clients. Cognitive-behavioral training and coping skills development (e.g., increasing self-awareness, self-monitoring and self-control) have been supported empirically in traumatized and CP populations (Cohen, 1998; Kazdin, 1997). Guided imagery techniques, which are incorporated with MI in MASTR to promote desired behaviors, have also received empirical support (Taylor, Pham, Rivkin, & Armor, 1998). Finally, the evidence for EMDR has already been noted; EMDR has been used for trauma resolution; working through trauma is seen as an integral part of trauma therapy (Cohen, 1998). Incidentally, if one views EMDR as a full-treatment method rather than a single-

session procedure, the MASTR protocol exemplifies and is entirely consistent with the EMDR method, in that MASTR provides client history, treatment planning, and client preparation for trauma resolution, using interventions uniquely suited to this challenging population (Greenwald, 2002a).

Following positive case reports of MASTR with two incarcerated youth (Greenwald, 2000), an open trial found that all six adolescents treated with MASTR showed reduced trauma symptoms, reduced presenting problem behaviors and improved school performance (Greenwald, 2002a). Given the difficulty in treating CP adolescents and the likely value of addressing their trauma-related issues, we believed that the potential value of MASTR and the encouraging outcomes from the open trial indicated that further study was warranted. In addition, although most EMDR research with youth is favorable, more study is indicated with special populations such as CP adolescents.

This study aimed at evaluating the effects of MASTR combined with EMDR (MASTR-EMDR) among traumatized adolescents with CPs admitted to YPS. As such, this study did not strictly evaluate EMDR, but a treatment package including EMDR (and other interventions such as MI). The first hypothesis was that participants receiving 12 weeks of weekly sessions of MASTR-EMDR would present reduced trauma symptoms and behavioral problems compared with participants receiving the routine therapy administered in YPS. The second hypothesis was that these effects would be maintained at a three-month follow-up.

Method

Participants

Data were collected between May 2005 and November 2006. Eighty adolescents admitted to YPS in Quebec consented to participate in this study with a parent/legal guardian. Eleven participants changed their minds about participating after signing the consent form. Four other participants were excluded due to psychosis ($n = 2$) and lack of trauma exposure ($n = 2$) following an interview screening for trauma exposure (detailed in measures section), CPs, psychotic disorders, suicidality or mental retardation. All retained participants ($n = 65$) were randomly assigned to receive 12 weeks of MASTR-EMDR therapy ($n = 33$) or routine treatment ($n = 32$). Participants were referred to YPS due to lack of parental responsibility ($n = 7$), parental rejection ($n = 5$), threatened physical health due to lack of appropriate care ($n = 1$), risk of moral/physical danger for the child due to parents' lifestyle ($n = 15$), sexual abuse ($n = 3$), physical abuse ($n = 6$), serious behavioral disturbances ($n = 32$), school absence ($n = 1$), commitment of a criminal offence ($n = 5$) or other ($n = 7$). Participants were referred for more than one reason ($n = 15$).

Attrition at post-treatment. Fifteen participants dropped out of the study at post-treatment. In the experimental group, they dropped out for refusing to discuss their traumas ($n = 2$), for no longer being in custody of YPS and their families stopped their participation ($n = 2$) and for changing their minds ($n = 6$). Two participants dropped out following completion of MASTR-EMDR and did not carry out further

assessment. In the control group, four changed their minds and one ran away. As such, forty eight participants were retained with 21 in the experimental group and 27 in the control group.

Attrition at 3-month follow-up. Two participants in the experimental group and six participants in the control group dropped out of the study at this point as they changed their minds about participating. Therefore, forty participants were retained at the follow-up, with 19 participants in the experimental group and 21 in the control group. The current study compares the 40 participants who stayed in the study until its completion.

ANOVAs and chi squared tests found no significant differences between the treatment and control groups on the one hand and between those retained in the study and those who withdrew on the other hand. Analyses compared age, gender, living arrangements, types of trauma, clinical and non-clinical levels of trauma and internalizing and externalizing symptoms. One significant difference emerged between retained and withdrawn participants; a higher number of those who withdrew had been robbed ($F_{(1, 65)} = 4.3, p < .05$). Analyses included participants retained in the study for the follow up evaluation. As such, sample composition included 25 female and 15 male French-speaking adolescents aged from 13 to 17 years (see table 1).

Insert Table 1 about here

Measures

One in-house questionnaire evaluated demographic information. The French versions of the measures evaluated adolescents' symptomatology. Modules of the *Diagnostic Interview Schedule for Children* (DISC: Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000) evaluated PTSD, CD and ODD according to the DSM IV. Symptoms were assessed in addition to diagnoses to account for a larger repertoire of problems. The French version of the DISC is currently being validated. The DISC has adequate reliability ($\kappa = .10$ to $.37$ for the different disorders; Shaffer et al., 2000) and acceptable validity ($\kappa = .24$ to $.57$ agreement with clinician diagnoses; Schwab-Stone, Shaffer, Dulcan, Jensen, Fisher, Bird, Goodman, Lahey, Lichtman, Canina, Rubio-Stipec, & Rae, 1996). A higher score in the symptom counts indicates more symptoms.

The *Trauma Symptom Checklist for Children* (TSCC: Briere, 1989; Briere, 1996) is a 54-item self-report measure used to assess trauma-related difficulties. The TSCC includes 6 clinical subscales measuring stress, anger, depression, dissociation, anxiety and sexual concerns (Briere, 1996; Friedrich, Jaworski, Huxsahl, & Bengtson, 1997; Lanktree & Briere, 1995). It has adequate reliability with alphas in the mid to high 80s for all scales except for sexual concerns, which has alphas in the mid 60s (Briere, 1996; Friedrich et al., 1997; Lanktree & Briere, 1995). The validity ($r = .20$ to $.37$ with other measures; Friedrich et al., 1997 and $r = -.21$ to $-.22$ with symptom reduction, Lanktree & Briere, 1995) is also satisfactory. The TSCC was also

validated in French with a Quebec sample (Jouvin, 2000). A higher score on the TSCC indicates more trauma symptoms.

The parent-version of the *Child Behavior Checklist* (CBCL: Achenbach, 1991b) is a widely-accepted 112-item measure that assesses social competence and behavioral problems. Subscales can be grouped into externalizing (i.e., aggression and delinquency) and internalizing difficulties (i.e., anxiety/depression, somatic difficulties, retreat). The CBCL has been found to have high validity ($r = -.20$ to $-.44$ on variables relating to adaptive functioning and $r = .17$ to $.44$ on measures of pathology) and reliability (mean $\alpha = .77$, median $\alpha = .76$) in the assessment of adolescents (Dutra, Campbell, & Westen, 2004) and to be highly correlated to observed behaviors ($r = .21$ to $.30$ on total scores; Wherry, Dawes, Rost, Smith, & Jolly, Vaught, & Hudson, 1992). The two previous months were assessed in this study. A higher score reflects greater behavioral problems.

The *Lifetime Incidence of Traumatic Events* (LITE: Greenwald, 2004; Greenwald, Rubin, Russell, & O'Connor, 2002; Greenwald & Rubin, 1999) is a 17-item self-report questionnaire that includes 16 items that covers the gamut of traumatizing events and losses. The impact both at the time of the event and at the current moment is assessed on a 3-point Likert frequency scale (i.e., none, some, lots). This measure was used to screen participants for trauma exposure and distress. Only individuals reporting traumatic experiences with a high impact were included in the study. Preliminary support for the validity ($r = .53$ to $.56$ with the TSCC; Greenwald, Satin,

Azubuike, Borgen, & Rubin, 2001) and reliability ($\alpha = .80$; Greenwald & Rubin, 1999) has been found.

Design and Procedure

The research opportunity was brought to the participants' attention by their YPS caseworker. The participants then met the research assistants, who provided an explanation of the study and obtained their informed consent. The research assistants were primarily doctoral level clinical psychology students who received training and ongoing supervision in the administration of all measures. Subsequently, an initial evaluation was conducted with the adolescents and a parent/caregiver. The primary YPS caregivers filled out the parent version of the questionnaires for youth in residence and the parents/legal guardians filled out the questionnaires in all other cases. The adolescents who met inclusion criteria were randomly assigned to MASTR-EMDR or routine care conditions (i.e., the care normally received by adolescents in YPS, recorded for the purposes of the study). The participants in the experimental group also continued to receive their routine treatment throughout the study period. Participants receiving the treatment were evaluated immediately after treatment completion and three months later. The participants in the wait-list condition were evaluated in the same time segments and were then offered the therapy due to ethical considerations (their treatment data is not included in the present study). The research assistants did not consistently interview the same participants at the three points in time nor were they consistently blind to the treatment condition.

Two licensed masters-level therapists with 29 and 30 years of experience with youth, who had completed the full EMDR training and had ongoing supervision from MASTR's originator (who is also a credentialed EMDR instructor), provided the treatment. The sessions followed a step-by-step written treatment protocol including scripts covering the bulk of most sessions. They were videotaped and reviewed by two evaluators, one doctoral and one bachelor level student, who independently assessed treatment fidelity. In particular, 30% of sessions were randomly selected for evaluation. The evaluators were provided with copies of the treatment manual, fidelity rating sheets and a training session from one of the therapists. On average, 94% of criteria in the treatment protocol were met, suggesting that the treatment was implemented properly. Interrater reliability was assessed for 30% of the viewed sessions after each evaluator's independent review and was found to be 100%. The ethics committees at the Université de Montréal and the Centre jeunesse de Québec / Institut universitaire approved the study and informed consent procedures were obtained from the adolescents and one of their parents or legal guardians.

Treatment

Twelve weekly individual sessions of MASTR-EMDR that lasted a maximum of 1.5 hours were offered to the adolescents. Since the original open trial (Greenwald, 2002) the protocol had undergone considerable development; in this study, the revised protocol was used (Greenwald, in press). Sessions 1 to 4 of MASTR comprise of an evaluation in which rapport is established, history is assessed, the client is guided to

identify short- and long-term goals, visualize a positive future including constructive actions leading to a happy ending; and also visualize the unwanted alternative, an unhappy ending. This is followed by a case formulation and treatment planning session in which the client commits to working towards the positive goals. Sessions 5 to 8 consist of self-management skills training, including one session on avoiding high-risk situations and multiple sessions using imaginal rehearsal of behavioral choices, on each occasion connecting the poor self-control choice with the unhappy ending, and the adaptive self-control choice with the happy ending. Sessions 9 to 12 are devoted to trauma resolution. EMDR begins with recent minor upsetting events so that clients are introduced to EMDR under low stress, and highly traumatic events are only processed afterwards. In this study, participants had been exposed to a mean 4.4 ($SD = 1.5$, range = 1 to 7) types of trauma and a mean of 5.6 ($SD = 2.0$) traumatic events were worked through in the EMDR sessions (as the participants may have been exposed to one type of traumatic event more than once). Although the MASTR protocol may include more or fewer self-management sessions, does not limit trauma resolution to four sessions, and includes follow-up relapse prevention and harm reduction work, for this study we provided only the 12 sessions as described. The manualized (procedure) portion of the EMDR protocol was conducted according to Shapiro's (2001) text, with minor age-appropriate modifications as needed (Greenwald, 1999).

The routine care had various forms. Among participants in the control group, 57% received another form of therapy. The types of therapy received were individual

(43%), dyadic (14%), group (14%), family (14%) or other types of therapy (29%).

The participants in the experimental group also continued to receive the routine care offered in YPS. In addition to MASTR-EMDR, participants in the experimental group continued to receive individual (5%), group (21%), family (11%) and other types of therapy (16%). On average, participants in the control group received 17 sessions of their other treatments over a period of 8 months and the experimental group received 11 sessions over the same time period. The total number of sessions of routine care was not found to be associated with treatment outcome.

Data analysis

Analyses of variance (ANOVA) and chi square tests were conducted to determine group differences. Analyses of covariance (ANCOVA) were used to assess the effect of routine care on outcome. ANCOVAs were also used to assess pre- to post-treatment differences using the pre-treatment score as a covariate. Repeated measures ANCOVAs on the change in scores between post-treatment and follow-up were used using the pre-treatment score as a covariate. These assessed whether effects were maintained at follow-up. Effect sizes were calculated by comparing the treatment effects between the two groups and were determined according to Cohen's (1988) recommendations.

Results

Pre-Post treatment differences

The first hypothesis was that MASTR-EMDR would significantly improve adolescents' symptoms and behaviors compared with routine care. As predicted, ANCOVAs confirmed significant differences and medium to large effect sizes between the scores of the experimental and control groups at the post-treatment evaluation on (1) posttrauma difficulties as assessed by the DISC and TSCC, (2) externalizing problems as assessed by the CBCL and (3) symptoms of disturbance disorders as assessed by the DISC. Participants who received the MASTR-EMDR treatment significantly improved compared to the control group on these variables. Table 2 presents the means scores and ANCOVAs for both groups.

 Insert Table 2 about here

Post treatment – Follow-up differences

The second hypothesis that the treatment effects would be maintained at a three-month follow-up, as assessed by repeated measures ANCOVAs, was confirmed. Treatment effects were maintained at the three month follow-up and no differences between post-treatment and follow-up were found with one exception; a significant interaction effect was found for dissociation ($F_{(1, 40)} = 7.83, p < .05, \eta^2 = .18$). However, no significant simple effects were found (see table 2).

 Insert Table 3 about here

Clinical changes

The percentage of participants who met criteria for the diagnoses of PTSD, ODD and CD as well as those who met the clinical threshold of subscales in the TSCC and

CBCL (as determined by these measures) were computed at all three points of evaluation. Fewer participants in both groups met criteria for DSM IV diagnoses at the post-test and follow-up evaluations. However, the decline was even greater for the experimental group, which presented fewer participants with clinical scores following the treatment.

Insert Table 4 about here

Adolescents' level of satisfaction with the treatment

All participants were asked to rate treatment satisfaction on a 3-point scale (i.e., 1 = low, 2 = average, 3 = high). The mean rating for treatment satisfaction was 2.86 for the experimental group, revealing the participants' general satisfaction with the treatment as opposed to the control group who had a mean rating of 2.00.

Discussion

Analyses revealed that the study's hypotheses regarding the effects of MASTR-EMDR among traumatized youth with CPs were confirmed. This treatment led to reduced trauma symptoms and behavioral problems among participants in the experimental group and effects were maintained at follow-up. In addition, parents' and adolescents' questionnaires and statistical and clinical analyses predominantly complemented each other and thereby confirmed the validity of these findings.

The results are consistent with those found in previous research supporting the use of EMDR among children and adolescents (Chemtob et al., 2002; Cocco & Sharpe,

1993; Datta & Wallace, 1996; Greenwald, 1994; Greenwald, 2002a; Jaberghaderi et al., 2004; Maxwell, 2003; Puffer et al., 1998; Scheck et al., 1998; Soberman et al., 2002). These findings also support the use of the MASTR protocol as a whole, with CP adolescents.

Participants improved significantly and clinically on trauma and behavioral difficulties. Nonetheless, several factors may have led to even greater improvement. The participants receiving MASTR-EMDR reported a mean number of 4.4 types of traumatic events. However, only one traumatic memory is worked through at a time in EMDR and it may take more than one session to work through a given traumatic memory. The four EMDR sessions allocated in this study was probably insufficient in many cases to process all of these participants' traumatic memories. In addition, the final phase of MASTR was not included in this study, namely consolidation of gains after post-trauma resolution, followed by relapse prevention and harm reduction, which may also improve outcome.

CD symptoms did not change significantly although other CPs such as ODD symptoms and externalizing problems did significantly improve. This may indicate that although this treatment improved general CPs, it did not sufficiently target CD. Treatments for CPs often incorporate problem-solving skills' training, which was included in MASTR, yet they also include a family component. For example, parent management training (Kazdin, 2005) teaches parents to improve parent-child interactions, functional family therapy targets the relational function of the problem

and multisystemic therapy focuses on individual, family and extra-familial systems. During treatment, some of the parents/caregivers may not have understood what their child was going through, thereby thwarting treatment progress. Trauma-focused treatments also advocate parent treatment. For example, Deblinger (Cohen, Mannarino, & Deblinger, 2006; Stauffer & Deblinger, 1996) includes a parent component in her treatment for sexually abused children as parental support has been found to improve outcome while negative parental behaviors further aggravate the problems. Participants may have further benefited if their parents/caregivers were offered a parallel treatment providing support and psycho-education. In his new book, Greenwald (in press) recommends parent training and/or other community/system interventions in conjunction with this individual protocol.

Internalizing symptoms, as found by the CBCL, did not significantly change. This seems to contradict the finding of significant improvement on trauma symptoms, as assessed by the TSCC, which includes internalizing subscales (e.g., depression, anxiety). This may be explained by the parents/caregivers' completion of the CBCL as opposed to the adolescents themselves. Internalizing symptoms may be more difficult to judge from an external stand. In particular, adolescents who are being seen in the context of YPS may especially be averse to confiding in their caregivers. In addition, cross-informant agreement is generally quite low for youth psychopathology (Achenbach, 1991a).

It is worth noting that only two of the initial 80 participants were screened out of the study for lack of a reported trauma. The vast majority of the sample (97.5%) therefore reported experiencing major trauma that left a strong emotional impact on them, possibly representing the trauma experienced by many CP youth. It would be interesting to further investigate this minority who reported no trauma history as they may have underestimated the impact of past events in order to minimize them. Moreover, the fact that most were traumatized may indicate that this treatment may be generalizable to other youths in these settings.

This study combined MASTR with EMDR rendering it impossible to discriminate between them. It is questionable whether these adolescents would be willing or able to go through EMDR without MASTR. However, EMDR incorporates a preparatory phase in its treatment and MASTR may be considered as an extended preparatory phase for EMDR suitable for this population. Moreover, the excellent treatment participation rates in the study (as only two participants refused treatment) may be due to the effects of the motivational work and the confidence-building step-by-step approach in MASTR.

Limits

It is important to note some of the study's limitations. First, the control group was exposed to routine care, which was also offered to the experimental group. The routine care sometimes consisted of therapy and was at other times irregular in terms of content, duration and type of therapist. Offering a better defined alternative therapy

to the control group would offer a contrast to MASTR-EMDR and would control for a possible placebo effect. Second, as EMDR was combined with MASTR, it is impossible to discriminate between them. Third, due to YPS' large network of therapists not implicated in the research, we were unable to obtain the level of experience of each therapist offering routine care. As such, these therapists may have had less experience than the MASTR-EMDR therapists, which may partially account for the difference in outcome. Interviewers were also not consistently blind to treatment condition, which may have influenced results. Finally, the number of placements encountered by each adolescent was not recorded, which may be a confounding variable as an increased number of placements is associated with worse problems (Newton, Litrownik, & Landsverk, 2000).

Strengths

This study improved on past research with sound methodology. Participants were randomly assigned to treatment conditions, statistical and clinical indices of improvement were measured and blind assessors were used. This study had a larger sample than previous studies, standard measures were used and outcome was assessed with two sources of evaluation (adolescent and parent/caregiver). Finally, a treatment setting was used, thereby increasing the study's ecological validity.

Conclusion

This study implemented and demonstrated the effectiveness of MASTR-EMDR in YPS, where therapy is offered unsystematically or not at all. As such, it may help

pave the way toward the use of more empirically validated treatments in this setting.

It would be worthwhile for future research to compare the effects of MASTR-EMDR to other leading treatments for this population. MASTR-EMDR should also be tested with and without additional components such as parent training. This study filled an important gap in EMDR adolescent research and treatment outcome research in YPS and adds to research supporting EMDR with traumatized populations. Moreover, this research provides support for MASTR in engaging challenging adolescents in treatment and motivating them to work on improving their self-management skills through work on their traumatic memories.

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Table 1
Demographic characteristics and trauma exposure

	Experimental group n = 19	Control group n = 21
Mean Age (SD)	14.3 (1.4)	14.9 (1.3)
	% (n)	% (n)
<i>Gender</i>		
Male	26.3 (5)	47.6 (10)
Female	73.7 (14)	52.4 (11)
<i>Ethnicity</i>		
Canadian	100 (19)	85.7 (18)
Italian	0	4.8 (1)
Haitian	0	4.8 (1)
Indian	0	4.8 (1)
<i>Lives with</i>		
Both parents	15.8 (3)	9.5 (2)
Mother	10.5 (2)	9.5 (2)
Other family member	5.3 (1)	4.8 (1)
Youth protection center	68.5 (13)	66.8 (14)
Foster home	0	9.5 (2)
<i>Trauma exposure</i>		
Injury	57.9 (11)	66.7 (14)
Witness injury	73.7 (14)	51.9 (13)
Friend/family sick/died	94.7 (18)	95.2 (20)
Robbery	36.8 (7)	28.6 (6)
Fire	0	9.5 (2)
Natural disaster	10.5 (2)	4.8 (1)
Parental separation	63.2 (12)	81.0 (17)
Threat	73.7 (14)	52.4 (11)
Physical abuse	84.2 (16)	66.7 (14)
Sexual abuse	63.2 (12)	52.4 (11)
Mean number of trauma types (SD)	4.6 (1.6)	4.2 (1.4)
<i>Psychiatric diagnoses</i>		
PTSD	36.8 (7)	19.0 (4)
ODD	36.8 (7)	23.8 (5)
CD	42.1 (8)	28.6 (6)
<i>Family income</i>	n = 17	n = 12
\$0,000 – \$39,999	41.2 (7)	75.0 (9)
\$40,000 – \$79,999	35.3 (6)	16.7 (2)
\$80,000 – \$130,000	23.5 (4)	11.0 (1)
<i>Cause of YPS referral</i>		
Lack of child care	10.5 (2)	14.3 (3)
Rejection	0	14.3 (3)
Threatened health	10.5 (2)	23.8 (5)
Risk from parents' lifestyle	10.5 (2)	23.8 (5)
Sexual abuse	15.8 (3)	0

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Physical abuse	5.3 (1)	9.5 (2)
Serious behavioral disturbances	47.4 (9)	33.3 (7)
School absence	5.3 (1)	0
Criminal offence	5.3 (1)	14.3 (3)
Other	15.8 (3)	19.0 (4)

Table 2

Means and (standard deviations) at pre-treatment and post-treatment by Groups

	<u>Experimental group</u> (n = 19)		<u>Control group</u> (n = 21)		<u>F</u> (df = 1, 40)	<u>η^2</u>
	Pre	Post	Pre	Post		
Child measures						
<i>DISC</i>						
PTSD symptoms	6.4 (4.2)	.3 (1.4)	3.7 (4.9)	1.4 (3.4)	6.05*	.14
ODD symptoms	3.7 (1.9)	1.1 (1.8)	3.0 (2.5)	2.2 (2.2)	4.68*	.12
CD symptoms	2.0 (2.3)	.4 (1.0)	1.6 (2.0)	.6 (1.6)	1.12	.03
<i>TSCC</i>						
Stress	12.0 (6.0)	3.3 (3.6)	11.1 (6.0)	8.1 (6.3)	10.16**	.22
Anger	10.5 (6.4)	3.8 (3.5)	7.4 (5.7)	5.2 (4.4)	4.94*	.12
Depression	10.0 (6.4)	2.2 (2.0)	7.6 (5.6)	5.7 (5.0)	14.71***	.28
Dissociation	9.1 (7.2)	2.2 (2.4)	6.4 (3.5)	4.6 (4.1)	7.31*	.17
Anxiety	8.4 (5.6)	2.8 (2.6)	7.4 (6.1)	5.9 (5.8)	7.56**	.17
Sexual concerns	3.8 (4.8)	1.6 (1.9)	4.8 (5.0)	3.8 (4.4)	6.73*	.15
Parent measures						
<i>CBCL</i>						
Externalizing	70.3 (11.1)	58.9 (12.1)	67.8 (10.0)	68.3 (9.9)	9.77*	.21
Internalizing	67.9 (7.8)	60.6 (8.5)	67.6 (6.7)	66.1 (12.1)	3.22	.08

* .05

** .01

*** .001

Table 3

Means and (standard deviations) at post-treatment and follow-up by Groups

	<u>Experimental group</u> (n = 19)		<u>Control group</u> (n = 21)		<u>F</u> (df = 1, 40)	<u>η^2</u>
	Post	Follow-up	Post	Follow-up		
Child measures						
<i>DISC</i>						
PTSD symptoms	.3 (1.4)	.4 (1.0)	1.4 (3.4)	1.3 (3.2)	.26	.01
ODD symptoms	1.1 (1.8)	1.1 (1.4)	2.2 (2.2)	1.8 (1.9)	.11	.00
CD symptoms	.4 (1.0)	.5 (1.1)	.6 (1.6)	.8 (1.9)	.00	.00
<i>TSCC</i>						
Stress	3.3 (3.6)	3.8 (4.0)	8.1 (6.3)	6.8 (5.5)	1.69	.04
Anger	3.8 (3.5)	4.8 (5.4)	5.2 (4.4)	4.3 (3.3)	3.59	.09
Depression	2.2 (2.0)	3.7 (5.6)	5.7 (5.0)	4.7 (4.8)	3.70	.09
Dissociation	2.2 (2.4)	2.9 (4.2)	4.6 (4.1)	3.3 (3.4)	7.76*	.17
Anxiety	2.8 (2.6)	2.2 (2.5)	5.9 (5.8)	4.8 (4.3)	1.29	.03
Sexual concerns	1.6 (1.9)	1.5 (2.4)	3.8 (4.4)	2.8 (3.2)	1.05	.03
Parent measures						
<i>CBCL</i>						
Externalizing	58.9 (12.1)	57.9 (13.6)	68.3 (9.9)	69.5 (9.0)	.15	.00
Internalizing	60.6 (8.5)	61.6 (7.5)	66.1 (12.1)	66.4 (11.0)	.15	.00

* .05

Table 4

Percentages of clinical scores at pre-treatment, post-treatment and follow-up

	<u>Experimental group (n =19)</u>			<u>Control group (n = 21)</u>		
	Pre	Post	Follow-up	Pre	Post	Follow-up
<i>DISC</i>						
PTSD diagnosis	36.8	0	0	19.0	9.5	4.8
ODD diagnosis	36.8	5.3	5.3	23.8	9.5	0
CD diagnosis	42.1	0	5.3	28.6	9.5	9.5
<i>TSCC</i>						
Stress	15.8	0	0	19.0	9.5	4.8
Anger	10.5	0	0	4.8	4.8	4.8
Depression	26.3	0	5.3	19.0	9.5	9.5
Dissociation	15.8	0	5.3	0	4.8	4.8
Anxiety	26.3	0	0	19.0	9.5	4.8
Sexual concerns	21.1	5.3	5.3	14.3	4.8	4.8
<i>CBCL</i>						
Externalizing	68.4	36.8	47.4	66.7	85.7	76.2
Internalizing	78.9	42.1	47.4	76.2	66.7	66.7

Article 2

L'efficacité de l'approche MASTR-EMDR auprès d'adolescent(e)s qui ont été
agressé(e)s sexuellement

Leechen Farkas, Mireille Cyr, Thomas Lebeau, Jacques Lemay et Pierre McDuff

Résumé

Cette étude évalue l'efficacité du traitement manualisé (MASTR-EMDR) auprès d'adolescent(e)s ayant subi des agressions sexuelles. Les trente participants ont été répartis au hasard dans le groupe traitement ou le groupe témoin qui continuait de recevoir les services habituels. Le traitement cible à la fois les problèmes comportementaux des jeunes et la résolution de leurs traumatismes. Les participants ont complété des mesures de comportement et de symptômes post-traumatiques avant et après le traitement et au suivi de 3 mois. Des ANCOVAs et des ANCOVAS à mesures répétées indiquent que les adolescents du groupe traitement se sont significativement améliorés et les gains se sont maintenus dans le temps.

Abstract

This study aimed to assess the outcome of a manualized therapy, MASTR-EMDR, for sexually abused adolescents compared with the routine treatment offered in youth protective services. The MASTR component addresses treatment obstacles present in youth with behavioral problems and EMDR targets trauma resolution. Participants completed questionnaires on posttrauma symptoms and behavioral problems at the start of the study (pre-treatment), which was followed by three months of either MASTR-EMDR or routine therapy, post-treatment and follow-up. ANCOVAs and repeated measures ANCOVAs showed that MASTR-EMDR is associated with significant improvements compared with a control group and that these effects are maintained at follow-up.

L'agression sexuelle est un traumatisme susceptible d'engendrer une grande diversité de séquelles et de problèmes de santé mentale tant à court, qu'à moyen ou long termes (Kendall-Tackett, Williams et Finkelhor, 1993; Putnam, 2003). Chez les adolescents, diverses séquelles ont été notées dans les études américaines comme des symptômes de dépression, d'anxiété, de stress post-traumatique, d'agressivité, de colère, de dissociation, de comportements internalisés et externalisés, de problèmes relationnels, suicidaires et des préoccupations sexuelles (Beitchman, Zucker, Hood, DaCosta et Akman, 1991; Nelson, Heath, Madden, Cooper, Dinwiddie, Bucholz et al., 2002; Paolucci, Genuis et Violato, 2001). De 20 à 80 % des adolescents agressés sexuellement manifesteraient ces symptômes alors que 32 à 48 % présenteraient des symptômes post-traumatiques (Spaccarelli et Kim, 1995; Wolfe, Sas et Wekerle, 1994).

Les études conduites au Québec indiquent un portrait similaire. Un nombre important d'adolescents rapportent des conduites à risque au plan sexuel (Cinq-Mars, Wright, Cyr et McDuff, 2003), des comportements auto-destructeurs (Cyr, McDuff, Wright, Thériault et Cinq-Mars, 2005; Wright, Friedrich, Cinq-Mars, Cyr et McDuff, 2004), des comportements violents dans leur relation de couple (Cyr, McDuff et Wright, 2006), des symptômes post-traumatiques (Daigneault, Cyr et Tourigny, 2003; Thériault, Cyr et Wright, 2003) ainsi que des problèmes internalisés et externalisés (Daigneault et al., 2003; Thériault et al., 2003; Tourigny, Hébert et Daigneault, 2006).

Les sentiments de colère, les conduites agressives et les comportements externalisés fréquemment identifiés chez les adolescents agressés sexuellement font en sorte qu'une partie de ces jeunes se verront pris en charge pour un trouble de la conduite. D'ailleurs, 30 % des adolescentes, référées au centres jeunesse (CJ) pour tous motifs d'intervention confondus, rapportent avoir été agressées sexuellement (Pauzé, Toupin, Déry, Mercier, Joly, Cyr et al., 2004).

Ces séquelles psychologiques et comportementales ont des implications quant au traitement à offrir à ces adolescents à la fois pour remédier aux symptômes traumatiques mais également aux troubles de la conduite qui en découlent. Le traitement MASTR-EMDR combine à la fois une approche qui vise la maîtrise des émotions et le développement de stratégies adaptatives à une approche qui cible directement le trauma. Dans le présent article, l'efficacité et les composantes de ce traitement seront présentées et les résultats d'efficacité seront discutés.

L'EMDR (Eye movement desensitization and reprocessing) ou intégration neuro-émotionnelle par les mouvements oculaires est une approche de traitement psychothérapeutique développée par Francine Shapiro (2001) pour résoudre les symptômes découlant de l'exposition à un événement traumatique, comme l'agression sexuelle. Cette approche intègre des stratégies thérapeutiques novatrices comme la stimulation bilatérale alternée (p.ex., mouvement des yeux) aussi bien que des stratégies provenant d'autres approches comme l'exposition en imagination et des techniques d'association libre.

Seulement deux études empiriques comportant un groupe contrôle ont porté spécifiquement sur des personnes ayant vécu des agressions sexuelles. L'une a été réalisée auprès d'adolescents (Jaberghaderi, Greenwald, Rubin, Zand et Dolatabadi, 2004) et l'autre auprès d'adultes (Edmond, Rubin et Wambach, 1999). L'étude réalisée auprès des adolescents a comparé l'efficacité de six séances d'EMDR à celle de la thérapie cognitive comportementale. Les résultats indiquent que les deux traitements produisent des effets de grande taille (force de la relation) sur les symptômes post-traumatiques et des tailles d'effets moyennes sur les problèmes comportementaux. Toutefois, le traitement EMDR s'est révélé significativement plus efficace que la thérapie cognitive comportementale. Auprès des adultes, Edmond et ses collaborateurs (1999) ont comparé six séances de traitement EMDR au traitement usuel offert par quatre thérapeutes et le tout à un groupe contrôle en attente de traitement. Les adultes traités avec la thérapie EMDR ont démontré une diminution de leurs symptômes d'anxiété, de dépression et de stress post-traumatique ainsi que de leurs distorsions cognitives en comparaison aux adultes du groupe de traitement usuel. Edmond et Rubin (2004) ont effectué un suivi sur une période de 18 mois de cette cohorte et ont observé que les effets du traitement EMDR se maintenaient dans le temps.

Par ailleurs, plusieurs études sur les effets du traitement EMDR auprès d'enfants et d'adolescents ont démontré des résultats positifs de cette intervention. Trois de ces études comportaient des groupes de comparaison. L'étude de Soberman, Greenwald

et Rule (2002) a comparé le traitement standard offert en centre de jour au même traitement auquel trois séances d'EMDR ont été ajoutées. Les résultats indiquent que la détresse liée à la mémoire et aux problèmes comportementaux diminuait significativement dans le groupe EMDR. Puffer, Greenwald et Elrod (1998) ont observé que la moitié d'un échantillon de 20 sujets ayant vécu des traumatismes et à qui l'on avait offert une session d'EMDR, passait d'un seuil clinique à des niveaux normaux de symptômes post-traumatiques après le traitement. Chemtob, Nakashima et Carlson (2002) rapportent que les symptômes d'anxiété, de dépression et le nombre de visites chez l'infirmière ont diminué après que 32 enfants hawaïens, qui avaient développé des symptômes post-traumatiques à la suite de l'ouragan Iniku, aient reçu quatre séances de traitement EMDR.

Par ailleurs, deux études ont trouvé des résultats limités de l'efficacité de l'EMDR dans le traitement de phobie d'araignée (Muris, Merckelbach, Holdrinet et Sijsenaar, 1998; Muris, Merckelbach, van Haaften et Mayer, 1997) et une autre n'a pas observé d'effet positif de l'EMDR chez des jeunes fréquentant un centre d'interventions qui ne présentaient pas d'expérience traumatique bien circonscrite (Rubin, Bischofshausen, Conroy-Moore, Dennis, Hastie et al., 2001).

Ces résultats sont donc prometteurs quant au traitement des traumatismes identifiés, et notamment des agressions sexuelles, auprès des enfants et des adolescents avec une approche comme l'EMDR. Cette stratégie d'intervention semble présenter également des avantages non-négligeables avec une clientèle d'adolescents. En effet, avec

l'EMDR, le temps d'exposition est bref et ne requiert pas de dévoilement ou de discussion de la part du client sur le traumatisme. De plus, aucun exercice à faire à la maison n'est requis (Greenwald, sous presse).

L'approche MASTR pour Motivation-Adaptive Skills-Trauma Resolution (MASTR : Greenwald, sous presse) est un traitement manualisé, développé pour les adolescents qui ont été exposés à un traumatisme, qui inclut diverses méthodes dont le traitement EMDR. Cette approche a été développée pour des adolescents qui manifestent des difficultés à s'engager dans toute forme de thérapie et à faire confiance aux adultes (Greenwald, 2002). Les objectifs de ce traitement visent à établir un sentiment de sécurité dans la thérapie, d'encourager les clients à être des agents de leur changement et d'augmenter leur motivation. Cette approche comprend un ensemble de stratégies validées empiriquement, regroupé dans un traitement portant sur la résolution du traumatisme. Ceci inclut des entrevues motivationnelles (voir description du traitement) des modifications cognitives et comportementales, le développement de stratégies d'adaptation et de résolution du traumatisme.

L'objectif de cette étude est d'évaluer l'efficacité du traitement MASTR-EMDR comparativement au traitement habituel offert à des adolescents et des adolescentes agressés sexuellement et qui sont pris en charge par les centres jeunesse. L'hypothèse principale stipule qu'il y aura des différences significatives entre les adolescents qui ont suivi le traitement MASTR-EMDR et ceux du groupe témoin sur les symptômes

post-traumatiques et les problèmes internalisés et externalisés et que ces différences seront maintenues trois mois après la fin du traitement.

Méthode

Participants

L'étude s'est déroulée entre les mois de mai 2005 et novembre 2006. Trente adolescents agressés sexuellement et pris en charge par les CJ du Québec ont participé à l'étude de même qu'un de leurs parents, leur tuteur légal ou l'intervenant social significatif. L'étude s'inscrit dans un projet plus vaste sur les traumatismes chez les jeunes en CJ. L'échantillon (voir Tableau 1) comprend des adolescents francophones âgés de 13 à 17 ans ($M = 14.8$, $ET = 1.3$) dont 22 filles et 8 garçons. La majorité de ces adolescents résidait en CJ au moment de l'étude. Ces adolescents rapportent un nombre élevé d'événements traumatiques avec en moyenne près de 9 traumatismes au cours de leur vie tels que des agressions physiques, avoir été témoins de blessures graves (p.ex., violence conjugale, accident d'auto). Quant aux agressions sexuelles, plus de 40 % ont vécu plusieurs épisodes. Pour la moitié des participants, ces agressions se sont déroulées au début de leur adolescence soit entre 11 et 15 ans; elles comprenaient une pénétration dans 40 % et plus des cas et 40 % de ces agressions ont été commises par le même agresseur, habituellement un membre de la parenté autre que les parents.

Les sujets des deux groupes ne diffèrent pas statistiquement sur ces variables. Tous les participants ont été répartis au hasard soit dans le groupe de traitement qui

comprenait douze séances hebdomadaires de la thérapie MASTR-EMDR (n = 15) ou dans un groupe témoin (n = 15), de type liste d'attente. Les participants des deux groupes ont continué de recevoir les services usuels des CJ (p.ex., thérapie individuelle, de groupe, familiale). Un parent, un tuteur ou un gardien a participé à l'étude aux mêmes temps de mesure que les adolescents.

Insérer le Tableau 1 ici

Mesures

Un questionnaire maison a été utilisé pour recueillir les caractéristiques sociodémographiques des participants et celles de leur agression sexuelle. Les versions françaises des questionnaires suivants ont été utilisées pour évaluer la symptomatologie des participants.

Les adolescents ont complété le « *Trauma Symptom Checklist for Children* » (TSCC; Briere; 1996). Ce questionnaire auto-rapporté de 54 items mesure la fréquence des réactions à la suite d'un traumatisme sur une échelle en 4 points (jamais, parfois, souvent, presque toujours). Le TSC-C comprend six sous-échelles: anxiété, dépression, stress post-traumatique, préoccupations sexuelles, dissociation et colère. Les validités convergente, discriminante et de construit des sous-échelles ont été démontrées dans la version originale (Briere, 1996; Friedrich, Jaworski, Huxsahl et Bengtson, 1997) et dans la version québécoise (Jouvin, Cyr, Thériault et Wright, 2001). La fidélité test-retest de cette version française varie de 0,75 à 0,81 selon les échelles ($p < .001$) sur une période de 15 jours. Un score élevé sur les échelles du

TSC-C indique la présence d'une symptomatologie élevée.

Les problèmes de comportement internalisés (p.ex., anxiété/dépression, somatisation, retrait) et externalisés (p. ex., agressivité, délinquance) ont été évalués à l'aide du *Youth Self-Report* (Achenbach, 1991). Le questionnaire compte 119 items mesurés sur une échelle en trois points. Plus les scores sont élevés, plus la présence de problèmes est marquée. Un score *T* de plus de 63 (90ième percentile) est standardisé selon le sexe et reflète des problèmes nécessitant une attention clinique selon des normes américaines (Achenbach, 1991).

Les parents ont complété le *Child Behavior Checklist* (CBCL: Achenbach, 1991) qui mesure les mêmes dimensions à l'aide de 112 questions. Les deux versions ont démontré une consistance interne élevée et une très bonne fidélité test-retest (Dutra, Campbell et Westen, 2004).

Afin d'évaluer la présence de traumatisme dans la vie des adolescentes, la version traduite (Lebeau, Lemay, Helde, Cyr et Farkas, 2004) du *Lifetime Incidence of Traumatic Events* (LITE: Greenwald et Rubin, 1999) a été utilisée. Cet inventaire de 17 items couvre un large éventail d'événements traumatiques et de pertes (p.ex., décès d'un parent, accident grave, témoin de violence physique, agression sexuelle). L'impact du traumatisme au moment où celui-ci s'est produit et son impact actuel sont évalués sur une échelle de fréquence en trois points (pas du tout, un peu,

beaucoup). Des données préliminaires supportent la consistance interne, la fidélité test-retest et la validité de critère et de contenu du *LITE* (Greenwald et Rubin, 1999).

Devis expérimental et déroulement

Cette étude a été réalisée selon un devis expérimental à mesures répétées (pré et post-traitement et suivi à 3 mois) auprès de deux groupes de 15 adolescents répartis au hasard et de leur parent. Cette étude et le formulaire de consentement ont reçu l'approbation des comités éthiques de l'Université de Montréal et du Centre jeunesse de Québec/Institut universitaire. Les participants ont été informés de l'étude par leur éducateur du CJ. Les participants ont rencontré les assistantes de recherche qui leur ont décrit l'étude et le traitement et qui, après avoir complété les formulaires de consentement, ont procédé à une entrevue de tamisage. Les adolescents qui ne remplissaient pas les critères d'exclusion, présentant au moins un traumatisme qui les avait affectés et qui les affecte toujours, ne pas présenter un trouble psychotique, des idées suicidaire ou des déficits cognitifs, ont été retenus pour l'étude et répartis aléatoirement dans le groupe de traitement MASTR-EMDR ou dans la condition témoin. Le traitement MASTR-EMDR a été offert aux participants de la condition témoin à la fin de l'étude. Des 35 participants qui ont été retenus au début de l'étude, cinq (trois filles et deux garçons), dont trois du groupe traitement, ont abandonné l'étude et n'ont pas participé au deuxième temps de mesure. Les participants des deux groupes, de même que l'un de leur parent, leur tuteur ou leur gardien ont complété un ensemble de questionnaires aux mêmes trois temps de mesure. Les assistants de

recherche sont des étudiantes en psychologie qui avaient reçu une formation sur les instruments à administrer.

Traitement

Les 12 séances hebdomadaires de traitement MASTR-EMDR duraient en moyenne une heure trente minutes. Les séances 1 à 4 permettent d'établir une alliance de travail à travers des activités visant à établir les buts et les règles du traitement, à recueillir l'histoire traumatique de l'adolescent, à identifier ses forces et ses ressources. Elle permet aussi de procéder à une entrevue motivationnelle pour l'aider à visualiser et à établir ses buts par rapport à son avenir à court et à long terme mais aussi à visualiser une alternative qui n'est pas souhaitée, c'est-à-dire dont la fin ne serait pas heureuse. L'ensemble de ces activités permet, lors de la quatrième session, d'établir avec l'adolescent une compréhension de ses difficultés et de planifier les objectifs du traitement, soit d'éviter les situations à risque élevé, d'améliorer ses habiletés d'auto-contrôle, de diminuer le stress (quotidien et celui des traumatismes antérieurs) et de bâtir sur ses petites réussites.

Les séances 5 à 8 visent à aider l'adolescent d'une part, à identifier les situations où il se met à risque d'avoir des ennuis et, d'autre part, à développer de meilleures stratégies de contrôle de son impulsivité et de ses sentiments. Ces situations à risque et les nouvelles stratégies sont visionnées afin d'aider l'adolescent à développer une étendue plus large de stratégies réalistes. À cette occasion, les habiletés déficientes

utilisées habituellement et leurs conséquences négatives sont revues et mises en contraste avec les impacts plus positifs des nouvelles stratégies.

Les séances 9 à 12 sont dédiées à la résolution des traumatismes. L'EMDR débute avec des situations récentes qui ont provoqué des désagréments mineurs, ce qui permet à l'adolescent d'expérimenter l'approche EMDR avec un incident peu stressant. Les événements plus traumatisants sont ensuite traités. Seulement quatre séances d'EMDR ont été offertes dans le contexte de cette étude afin, entre autres, de permettre de standardiser la procédure. Pour tous les participants, le traumatisme lié à leur agression sexuelle a fait l'objet de l'une des cibles de traitement.

L'EMDR inclut différentes étapes afin d'obtenir l'information nécessaire sur le trauma et d'effectuer son traitement. Lors de la phase préparatoire, l'adolescent choisit un souvenir traumatique qu'il aimerait traiter. Il doit alors identifier une image qui représente la scène la plus difficile de la situation traumatique vécue et la croyance négative la plus fortement associée à l'événement. Par la suite, la personne identifie une croyance positive qui serait plus adaptée à la situation. L'intensité de la croyance positive est évaluée sur une échelle en 7 points. Les émotions/sentiments d'urgence (p.ex., la peur, la colère) et les sensations corporelles (p. ex., mains moites, estomac noué) associés à la cible sont ensuite identifiés de même que leur intensité sur une échelle en 10 points. Après cette étape de préparation, la désensibilisation peut commencer. Le thérapeute demande à l'adolescent de porter attention au souvenir perturbant et de focaliser simultanément son attention sur des stimulations

bilatérales alternées (p.ex., mouvements oculaires, stimulations tactiles), administrées en séries multiples d'une durée d'environ 30 secondes. Entre chaque série, on demande à l'adolescent de remarquer ce qui lui est venu à l'esprit pendant la procédure. Ce nouveau matériel devient généralement l'objet de la prochaine série de stimulations. Les séries de stimulations continuent jusqu'à ce que le souvenir initial de l'événement ne soit plus source de perturbation. Ce processus de stimulations bilatérales alternées est répété à plusieurs reprises pendant la séance. Finalement, la croyance positive est renforcée en procédant de la même façon jusqu'à ce que le client ne ressente plus aucun inconfort dans son corps et que la croyance positive soit bien ancrée.

Un psychologue et un travailleur social possédant respectivement 29 et 30 ans d'années d'expérience dans le traitement des enfants et qui avaient complété une formation de niveau 2 au traitement EMDR ont offert le traitement aux adolescents de l'étude. Toutes les séances de traitement MASTR-EMDR se sont déroulées suivant un manuel détaillant les activités de chaque session. Ces séances ont été filmées et évaluées par deux évaluateurs indépendants pour s'assurer de l'adhésion au protocole de traitement. Un total de 30 % des séances de traitement MASTR-EMDR ont été visionnées afin de vérifier dans quelle mesure chaque session offerte respectait le manuel de traitement. Ces séances ont été analysées indépendamment par deux étudiantes en psychologie à l'aide d'une grille de fidélité au traitement qui décrivait les composantes de chaque session. Au préalable, une formation concernant le traitement et une revue détaillée du manuel de traitement avaient été offertes. Au

total, 94 % des activités prévues au manuel de traitement ont été respectées, ce qui suggère que le traitement a été implanté de façon fidèle. L'accord interjuges, calculé sur 30 % des séances cotées par les deux évaluatrices indépendantes, était de 100 %.

Analyse des données

Des analyses préliminaires ont été effectuées pour s'assurer d'une part de l'équivalence des deux groupes et, d'autre part, que les adolescents qui avaient complété l'étude ne différaient pas des adolescents qui avaient abandonné l'étude. Les résultats de ces analyses de variance n'indiquent pas de différences entre les sujets quant à leur âge ou à leurs caractéristiques. Des ANCOVA et des ANCOVA à mesures répétées ont été utilisées pour vérifier les différences sur les mesures de symptômes et de comportements entre les deux groupes entre le pré et le post-test et entre les trois temps de mesure respectivement.

Résultats

Afin de vérifier l'efficacité du traitement MASTR-EMDR, des ANCOVA ont été réalisées sur les mesures en contrôlant pour la mesure obtenue au pré-test. Les résultats des analyses de même que les moyennes sur les échelles aux deux premiers temps de mesure sont rapportés au Tableau 2. Dans l'ensemble, les résultats confirment l'hypothèse et indiquent que ce traitement permet de réduire significativement les symptômes rapportés par les adolescents en comparaison avec ceux du groupe témoin et ce, de façon consistante sur presque toutes les mesures soit: le stress post-traumatique ($F_{(1, 29)} = 17,60, p < .001$), la colère ($F_{(1, 29)} = 15,70, p <$

.001), la dépression ($F_{(1, 29)} = 26,50, p < .001$), la dissociation ($F_{(1, 29)} = 10,10, p < .004$) et l'anxiété ($F_{(1, 29)} = 11,80, p < .002$). Seule l'échelle des préoccupations sexuelles ne démontre pas de différences significatives ($F_{(1, 29)} = 4,00, p = .056$), bien qu'il y ait une tendance vers l'amélioration. Quant aux mesures comportementales évaluées avec le *CBCL*, les adolescents du groupe traitement démontrent une amélioration plus grande que ceux du groupe témoin quant aux problèmes externalisés ($F_{(1, 29)} = 23,90, p < .001$) et internalisés ($F_{(1, 29)} = 9,80, p < .004$). L'évaluation des parents sur ces mêmes échelles indique des résultats similaires révélant que les adolescents qui ont reçu le traitement présentent moins de problèmes externalisés ($F_{(1, 29)} = 10,80, p < .03$) et internalisés ($F_{(1, 29)} = 5,10, p < .03$) que ceux du groupe témoin. Les tailles d'effet sont grandes sur toutes les mesures sauf pour l'échelle des préoccupations sexuelles et des troubles externalisés rapportés par les parents où les effets de taille sont moyens.

Insérer le Tableau 2 ici

Ces résultats se sont maintenus lors du suivi trois mois plus tard pour les deux groupes. Ainsi, les effets de la thérapie se sont maintenus pendant les trois mois suivant l'évaluation post-traitement sur les échelles de symptômes post-traumatiques et sur les échelles de problèmes externalisés et internalisés mesurées auprès des parents (voir Tableau 3). Par contre, un effet d'interaction est observé pour les échelles de problèmes externalisés ($F_{(1, 29)} = 4,78, p < .04$) et internalisés ($F_{(1, 29)} = 4,92, p < .03$) mesurées auprès des adolescents. Il s'agit d'effets de petite taille. Dans les deux cas, les adolescents du groupe de traitement maintiennent leurs acquis alors

que ceux du groupe témoin présentent moins de problèmes lors du suivi, indiquant une légère amélioration bien que celle-ci soit inférieure à celle du groupe traitement.

Insérer le Tableau 3 ici

Changements cliniques

Le pourcentage d'adolescents ayant atteint le seuil clinique aux sous échelles du TSCC et du CBCL (complété par les adolescents ainsi que par les parents) ont été calculés pour les trois temps de mesure. Le pourcentage de participants présentant un score clinique a diminué dans les deux groupes au post traitement et au suivi comparativement au pré traitement. Toutefois, cette différence est encore plus marquée pour le groupe expérimental.

Insérer le Tableau 4 ici

Discussion

Tel qu'attendu, le traitement MASTR-EMDR permet d'obtenir des améliorations significatives de la symptomatologie traumatique et des problèmes comportementaux qui y sont associés. Les résultats suggèrent donc que l'utilisation de ce traitement auprès d'adolescents ayant vécu des agressions sexuelles est un traitement efficace pour diminuer les problèmes présentés par cette clientèle des centres jeunesse.

Les résultats de cette étude ajoutent des informations pertinentes à celles des deux études qui avaient démontré l'efficacité de l'EMDR auprès d'enfants et d'adultes ayant vécu des agressions sexuelles (Edmond et al., 1999; Jaberghaderi et al., 2004).

Dans ces études, tout comme celle-ci, les participants avaient vécu un ou plusieurs épisodes d'agression sexuelle, perpétrés par un ou plusieurs agresseurs, suggérant ainsi que l'EMDR est efficace aussi bien pour traiter un seul événement d'agression sexuelle que pour des traumatismes plus complexes ou des traumatismes qui ont été perpétrés sur une certaine période de temps. Ces trois études ont permis d'observer une amélioration sur les mesures des symptômes post-traumatiques et les deux études qui portaient sur des populations adolescentes font aussi ressortir une amélioration des problèmes comportementaux. De plus, tout comme pour l'étude d'Edmond et Rubin (2004), les effets du traitement MASTR-EMDR se maintiennent dans le temps. L'absence d'amélioration sur l'échelle de préoccupations sexuelles peut s'expliquer par le questionnement important que vivent tous les jeunes durant l'adolescence à ce sujet.

À ce jour, peu d'études se sont attardées à évaluer avec une méthodologie adéquate l'impact de traiter directement le traumatisme sur les comportements. Toutefois, en plus de la présente étude, deux études confirment que les problèmes de comportement ont diminué à la suite d'un traitement EMDR (Datta et Wallace, 1996; Soberman et al., 2002). Une étude récente de Greenwald (sous presse) indique que cibler les traumatismes a un impact positif sur les problèmes de comportement.

Forces et limites de la présente étude

Le schème expérimental de cette étude constitue l'une des forces de même que le fait que le traitement ait été offert par des cliniciens d'expérience, que l'évaluation du

traitement ait été faite de façon indépendante et qu'une évaluation de relance ait été incluse. Une autre contribution de la présente étude est qu'elle est la première à inclure des garçons au sein de l'échantillon, ce qui augmente la généralisabilité des résultats. Toutefois, la majorité des participants sont des filles, ce qui représente la réalité des agressions sexuelles qui impliquent un nombre plus important de femmes que d'hommes.

Les prochaines études, en plus d'inclure un nombre plus élevé de sujets, devraient également introduire un suivi plus long auprès des participants afin de vérifier dans quelle mesure les symptômes seront présents après une, voire deux années. De plus, comme la clientèle qui a participé à cette étude présentait des problèmes de comportement, il serait pertinent d'inclure des mesures de suivi portant sur des actes délinquants en plus d'évaluer les effets du traitement sur les croyances irrationnelles et l'image de soi. Les résultats de la présente étude ne permettent pas de départager l'effet spécifique des composantes du traitement EMDR de celles du traitement MASTR. Il serait également intéressant de reprendre l'étude en ajoutant quelques séances supplémentaires de traitement EMDR puisque les adolescents présentaient, en plus des incidents d'agressions sexuelles, de nombreux autres traumatismes qui n'ont pu être traités étant donné le temps consacré (4 séances) à cette partie du traitement. Finalement, il serait intéressant de vérifier l'impact d'une composante systémique au traitement qui viserait à soutenir le parent ou tuteur pour les difficultés qu'il éprouve à aider le jeune à réguler ses émotions.

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Tableau 1

Caractéristiques démographiques des participants en fonction du groupe

	<u>Traitement</u> (n = 15)	<u>Témoin</u> (n = 15)
Âge	14,5 (1,3)	15,1 (1,2)
Sexe		
Féminin	85,7 %	60 %
Masculin	14,3 %	40 %
Habite avec parents	20 %	6,7 %
Famille d'accueil	13,3 %	20 %
Autre placement	60 %	60 %
Nombre moyen de traumatismes	9,33 (1,35)	8,27 (2,52)
Caractéristiques des agressions sexuelles		
Un épisode	35,7 %	26,7 %
Plusieurs épisodes, même agresseur	42,9 %	46,7 %
Plusieurs épisodes, plusieurs agresseurs	21,4 %	26,7 %
Âge au premier épisode		
3-6	21,4 %	28,5 %
7-10	21,3 %	21,4 %
11-15	57,3 %	50 %
Agression extra-familiale	57,1 %	80 %
Agression intra-familiale	42,9 %	20 %
Agression avec pénétration	40 %	46,7 %
Agression avec violence verbale	21,4 %	33,3 %
Agression avec violence physique	21,4 %	6,7 %

Tableau 2
Moyennes et écart-types pré et post-traitement sur les échelles de symptômes pour les deux groupes
ainsi que les tailles d'effet.

	Groupe traitement		Groupe témoin		Taille d'effet
	Pré (n = 15)	Post (n = 15)	Pré (n = 15)	Post (n = 15)	
Mesures auto-rapportées					
<i>TSCC</i>					
Stress post-traumatique	12,73 (4,42)	3,47 (3,34)***	12,80 (7,21)	10,00 (6,79)	,395
Colère	8,07 (4,40)	2,93 (2,60) ***	5,93 (3,90)	5,60 (4,70)	,368
Dépression	9,87 (6,06)	2,0 (1,56) ***	8,27 (6,54)	7,47 (5,77)	,496
Dissociation	9,00 (5,79)	6,27 (4,99)**	6,73 (4,28)	6,27 (4,99)	,273
Anxiété	9,60 (5,33)	3,80 (2,83)**	8,20 (6,64)	7,40 (6,14)	,303
Préoccupations sexuelles	4,73 (5,09)	1,80 (2,21)	4,47 (3,46)	3,47 (2,92)	,129
<i>CBCL</i>					
Internalisés	63,33 (8,36)	46,07 (6,66)**	63,33 (12,95)	60,07 (11,79)	,469
Externalisés	64,27 (7,88)	52,00 (10,58) ***	58,27 (9,76)	56,80 (10,35)	,266
Mesures auprès des parents					
<i>CBCL</i>					
Internalisés	65,14 (7,99)	60,36 (8,04)*	69,27 (7,20)	68,67 (10,22)	,119
Externalisés	63,50 (12,99)	56,00 (12,99)*	68,87 (9,94)	65,47 (7,20)	,066

* .05

** .01

*** .001

Tableau 3

Moyennes ajustées et écart-types au post-traitement et à suivi sur les échelles de symptômes pour les deux groupes et tailles d'effet.

	Groupe traitement		Groupe témoin		Taille d'effet
	Post (n = 15)	Suivi (n = 15)	Post (n = 15)	Suivi (n = 12)	
Mesures auto-rapportées					
<i>TSCC</i>					
Stress post-traumatique	2,83 (3,34)	4,46 (4,67)	10,13 (7,39)	8,60 (6,56)	,129
Colère	2,04 (2,60)	4,16 (5,99)	5,87 (4,86)	4,80 (2,81)	,103
Dépression	1,44 (1,56)	3,10 (5,87)	7,54 (6,24)	6,42 (5,90)	,079
Dissociation	2,16 (2,77)	2,38 (4,61)	5,97 (4,81)	4,40 (4,16)	,108
Anxiété	3,15 (2,83)	2,37 (2,96)	7,89 (6,86)	6,37 (4,85)	,016
Préoccupations sexuelles	1,74 (2,21)	1,61 (2,64)	3,24 (2,98)	2,58 (3,03)	,023
<i>CBCL</i>					
Internalisés	46,03 (6,66)	48,56 (8,13)*	60,14 (13,34)	54,24 (15,68)	,176
Externalisés	49,47 (10,58)	51,75 (8,85)*	59,73 (11,32)	55,62 (9,99)	,172
Mesures auprès des parents					
<i>CBCL</i>					
Internalisés	61,24 (8,04)	56,65 (8,30)	68,88 (11,43)	69,08 (10,17)	,065
Externalisés	57,41 (12,30)	57,18 (12,92)	66,57 (12,34)	67,77 (9,57)	,009

Tableau 4

Pourcentages de scores cliniques au pré traitement, post traitement et à suivi

	<u>Groupe traitement</u>			<u>Groupe témoin</u>		
	Pré (n = 15)	Post (n = 15)	Suivi (n = 15)	Pré (n = 15)	Post (n = 15)	Suivi (n = 12)
Mesures auto-rapportées						
<i>TSCC</i>						
Stress post-traumatique	12,1	0	0	18,8	6,3	3,1
Colère	12,1	0	3	3,1	3,1	0
Dépression	18,2	0	3	12,5	6,3	6,3
Dissociation	12,1	0	3	0	3,1	0
Anxiété	21,2	0	0	15,6	6,3	3,1
Préoccupations sexuelles	18,2	3	3	12,5	6,3	0
<i>CBCL</i>						
Internalisés	54,5	0	6,1	50	28,1	12,5
Externalisés	75,8	12,1	15,2	50	18,8	6,3
Mesures auprès des parents						
<i>CBCL</i>						
Internalisés	75,8	43,5	47,6	75	59,3	70
Externalisés	72,7	39,1	47,6	62,5	70,4	80

Conclusion

This research project aimed to examine the effectiveness of Motivation-Adaptive Skills-Trauma Resolution-Eye Movement Desensitization and Reprocessing (MASTR-EMDR) treatment in a sample of traumatized adolescents with conduct problems (CPs). The first hypothesis was that MASTR-EMDR would improve posttrauma symptoms and behavioral problems among traumatized adolescents with CPs compared to a control group of adolescents receiving routine treatment in youth protective services (YPS). The second hypothesis was that this treatment would lead to improved outcome among the adolescents in the sample who were sexually abused compared with the routine services offered in YPS.

Adolescents as well as one of their parents or caregivers completed self-report questionnaires and semi-structured interviews at three points in time (pre-treatment, post-treatment, follow-up). These measures evaluated the adolescents' internalizing and externalizing problems, posttrauma sequelae (i.e., stress, anger, depression, dissociation, anxiety and sexual concerns) as well as disorders and symptom counts of Posttraumatic Stress Disorder (PTSD), Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD).

Generally traumatized adolescents who were offered the MASTR-EMDR treatment were found to have significantly reduced externalizing behaviors, posttrauma sequelae as well as symptom counts of PTSD and ODD. Adolescent victims of sexual abuse (SA) were found to have improved internalizing and externalizing symptoms as well as posttrauma sequelae with the exception of sexual concerns. (Diagnoses and

symptom counts of PTSD, ODD and CD were not assessed for SA participants as the sample was too small for valid analyses on these scales).

Overall, the hypotheses of this research project were confirmed. MASTR-EMDR led to significantly better outcomes in a generally traumatized sample as well as in a sample of victims SA who exhibited CPs and were seen in YPS. In addition, the effects of this intervention were maintained at a 3 month follow-up.

Effects of MASTR-EMDR with victims of general trauma

The results complement those found in previous research supporting the use of EMDR among children and adolescents (Chemtob, Nakashima, & Carlson, 2002; Cocco & Sharpe, 1993; Greenwald, 1994; Jaberghaderi, Greenwald, Rubin, & Zand, 2004; Maxwell, 2003; Puffer et al., 1998;) and add to the scant literature on EMDR with high-risk samples (Datta & Wallace, 1996; Scheck, Schaeffer, & Gillette, 1998; Soberman, Greenwald, & Rule, 2002). The methodological soundness of this study also helps fill an important gap in the literature on EMDR with this population.

Implementing a research protocol among traumatized adolescents in YPS holds interest due to the high ecological validity and practical use of the results. Treatments in this setting have been found to be lacking consistency and empirical foundation (Association des centres jeunesse du Québec, 2002). Moreover, empirically validated treatments for CP youth in YPS are needed as serious behavioral problems (CPs) have been found to be the second most common cause of referral to YPS (Tourigny,

Mayer, Wright, Laverigne, Trocme, et al., 2002). In addition, recurrent admissions have been found among half of CP youth admitted to YPS (Bédard, & Turcotte, 1995), indicating the lack of appropriate intervention for these youths. Therefore, implementing more empirically validated treatments is beneficial to adolescents in YPS.

CP youth are, as whole, a treatment-resistant population due to their low motivation, views of therapy and affect tolerance (Greenwald, in press). This population has also been found to have high levels of trauma exposure (e.g., Steiner, Garcia, & Matthews, 1997). However, interventions aimed at treating individuals with CPs often fail to work through the traumatic material, which is viewed as crucial to trauma treatment, as these youths are generally treated for their presenting problems (Greenwald, 2002b). This may partially account for treatment failures among these adolescents. Therefore, this study aimed to fill this gap by implementing a trauma-focused treatment with CP youth that addressed treatment obstacles.

The high rates of trauma in this sample may represent the high rates of traumatized youth in YPS who could benefit from a trauma-focused treatment such as MASTR-EMDR. In this study, participants who were offered MASTR-EMDR were found to present reduced trauma symptoms and CPs after treatment. These findings raise questions about solely providing treatment based on the presenting symptoms of the client at hand. They suggest, rather, that examining and targeting the function of the symptom may be more beneficial in treatment. This too corresponds with other areas

of psychopathology in which targeting the cause is more fruitful (Conrod, Pihl, Stewart, & Dongier, 2000).

Effects of MASTR-EMDR with victims of SA

This is only the second study to examine EMDR among adolescent victims of SA and is the first to examine MASTR with this population. As such, it adds significantly to the literature on the subject. The results are consistent with the adolescent study (Jaberghaderi et al., 2004) and the adult study on EMDR with victims of SA (Edmond, & Rubin, 2004; Edmond et al., 1999).

The examination of MASTR-EMDR with SA youth was chosen for several reasons. First, Saunders, Berliner and Hanson (2003) gathered data on all treatment outcome studies for child and adolescent victims of SA and developed guidelines that can be used to judge the appropriateness and efficacy of treatment procedures and protocols for this population. In their comprehensive guide, they judge EMDR as a promising treatment for SA youth, meaning that the theoretical basis is sound, substantial supporting literature exists, it is generally accepted in treatment settings, there is no indication that it is associated with harm and a treatment manual exists. For EMDR to be considered a “supported and probably efficacious treatment,” it would need at least two studies including some form of randomization and the overall weight of multiple studies supporting its use. Therefore, the current study represents a major step in EMDR research with SA youth.

Second, one study assessing EMDR among children and adolescents with a variety of presenting problems in a child guidance center did not find statistical support for its use compared to routine treatment (Rubin, Bischofshausen, Conroy-Moore, Dennis, Hastie, Reeves, & Smith, 2001). In this study, the youth were not necessarily exposed to circumscribed traumas. In contrast, SA consists of a circumscribed type of maltreatment and is confined to discrete events as opposed to other types of maltreatment (e.g., neglect, emotional abuse). As the EMDR protocol consists of working through one traumatic event at a time, the hypothesis was that EMDR would be more fruitful for victims of SA than for victims of general trauma. In fact, in our two studies, the results may be stronger for the sample of SA victims than for the victims of general trauma.

Finally, maltreated children are often classified under a hierarchy as children are usually subject to more than one type of maltreatment (Latimer, 1998). In such a hierarchy, sexual abuse includes all other types whereas physical abuse, next on the hierarchy, includes neglect and emotional abuse. Moreover, physical abuse often occurs within the context of sexual abuse. Therefore, sexual abuse is sometimes considered the most invasive of types of maltreatment. Roth, Newman, Pelcovitz, van der Kolk & Mandel (1997) examined Complex PTSD (i.e., the problems resulting from longstanding repetitive abuse) in a DSM-IV field trial of 224 participants who suffered SA, PA or both using a multiple logistic regression model. They found that participants who suffered from both types of abuse had the highest risk of developing Complex PTSD, followed by those who suffered from SA.

Effects of MASTR-EMDR among victims of general trauma and SA with CPs

This research is the first attempt to examine MASTR in a large-scale treatment outcome study. The only other MASTR study consisted of case reports (Greenwald, 2002a). As such, this study provides empirical support for MASTR that was previously unavailable.

It is noteworthy that some of the results were inconsistent between the two samples (i.e., general trauma victims versus SA victims). In the sample of general trauma victims, sexual concerns improved significantly for the experimental group compared to the control group. In contrast, this result was not significant for the sample of SA victims. This finding may be explained by the validity of this subscale, which is lower than all other subscales in the Trauma Symptom Checklist for Children (TSCC: Friedrich, Jaworski, Huxsahl, & Bengtson, 1997; Lanktree & Briere, 1995). The lowered validity of this subscale was also found in the French version of the TSCC (Jouvin, 2001). A recent study assessing the psychometric properties of the TSCC in a sample of Swedish children found no significant differences between normative and clinical groups and no significant differences in the means of traumatized and nontraumatized adolescents in the normative group on the sexual concerns subscale. The authors hypothesize that the questions in this subscale may not be sensitive enough to distinguish between normal and clinical levels (Nilsson, Wadsby, & Göran Svedin, 2008). Along this line, research has found that sexual uncertainty is generally experienced by adolescents (Bancroft, 1989). Perhaps, this treatment would have led

to different results on sexual concerns in child or adult populations, who may not be as sexually preoccupied as adolescents.

Alternatively, the sexual concerns subscale is included in the Trauma Symptom Checklist for Children (TSCC: Briere, 1996) specifically to tap post-traumatic symptoms related to sexual abuse victimization and the scale is omitted in an alternate version of the TSCC, the TSCC-A (Briere, 1996). Therefore, results may not be significant due to the higher level of sexual concerns in this subsample.

Unfortunately, previous research on EMDR among victims of SA did not use the TSCC to evaluate posttrauma symptoms and the measures did not include a sexual concerns subscale, but evaluated general posttrauma and anxiety symptoms (Edmond, Rubin, & Wambach, 1999; Jaberghaderi Greenwald, Rubin, Zand, & Dolatabadi, 2004). As such, it is impossible to ascertain whether previous research on EMDR with SA samples produced changes in this area.

The other inconsistent result between generally traumatized and SA participants is the finding that internalizing problems (as measured by the parents) significantly reduced for SA participants but not for generally traumatized participants. The fact that the SA experience was not a secret from the victims' parents/caregivers may shed light on this finding. Parents have been found to suffer tremendously from the shock of learning that their child has been sexually abused (Elliott & Carnes, 2001). This may leave them more attuned to their child's internal world than parents of children who have not been sexually abused. As a result, they may be better able to judge the

internal symptoms of their children. Alternatively, as SA is sometimes considered to be one of the most severe types of trauma (Roth et al., 1997), the SA adolescents' internalizing symptoms pre-treatment may have been more striking to the parents thereby making it easier for them to discern a difference with their post-treatment state.

This research did not solely evaluate EMDR, but its effectiveness in combination with MASTR. As a result, the effects of each cannot be discerned in the present study. However, a preparatory phase is included in EMDR's protocol and MASTR may be considered as an extended preparatory phase for EMDR suitable for this population. In addition, the pre-treatment evaluations can be considered the client history and treatment planning phase of EMDR. It is questionable whether these adolescents would be willing or able to go through EMDR without MASTR. Many therapists have difficulty obtaining any type of therapy sessions with a population of CP youth; therefore therapy sessions that include trauma resolution, as in EMDR, may be even more challenging. As such, MASTR-EMDR offers promise in engaging challenging adolescents, getting them to work sincerely on improving their self-management skills and getting them to engage in trauma resolution work.

Clinical significance

Given the practical utility of the current project, it was important to include clinical indices of improvement in addition to tests of statistical significance. As such, the clinicians in systems such as YPS can understand that the effects are of concern to

them. Moreover, the validity of the findings is corroborated by the convergence of the effects with various informants and indices of change.

The purpose of this project was not solely to advance scientific knowledge, but to advance empirically supported treatments in YPS. Therefore, as demonstrated in this study, interventions in YPS should not solely target CP youths' disruptive behaviors. It would be worthwhile for YPS therapists to assess the trauma to which these children and adolescents have been exposed and consequently, to target this aspect of their experience.

MASTR-EMDR can be easily learned by YPS practitioners as it does not entail a lengthy or particularly arduous procedure. This training is most likely applicable to a large number of the clientele in YPS, making it a cost-effective approach to implement. In addition, the treatment itself is relatively short and has been found to be effective in this setting.

Strengths

The methodology in this study presents an improvement over past research in the field. The participants were randomly assigned to MASTR-EMDR treatment or routine treatment conditions, the assessments were made by blind research assistants as opposed to the therapists themselves, the sample was larger than those used in previous studies, standard measures were used, statistical and clinical indices of improvement were measured and two sources of information were used for each

participant's evaluation (the adolescent and a parent or caregiver). In addition, the treatment in the present study was provided in a real treatment setting, thereby increasing the ecological validity of the study and its generalizability to clinical situations.

Limits

It is worth noting some of the limits of this research. As previously noted, EMDR was offered with MASTR, rendering it impossible to judge the effects of each. In addition, MASTR-EMDR was compared to the routine treatments offered in YPS. However, it is not clear exactly what the routine treatment consisted of. Although the types of therapy included in the routine treatment were noted, specific information on the therapy is ambiguous. For example, parental monitoring and education may be considered to be therapy for some individuals unfamiliar with therapy who may assume that a clinician coming to their home in hopes of helping them consists of therapy. Moreover, the adolescents in the control group also received the routine treatment. As such, the control group consisted more of a wait-list condition than a treatment comparison group. Therefore, the lack of a specific treatment comparison group may have created a placebo effect. In addition, the routine care may have confounded results, as all participants continued receiving it regardless of treatment condition. However, the treatments offered to both groups were found to be similar and to not predict treatment outcome for the experimental group.

The therapists administering MASTR-EMDR had extensive experience working with this population. They also had ongoing supervision on the MASTR protocol and may represent a biased sample of YPS therapists as they showed interest in increasing their therapeutic skills. As the therapists in the routine treatment were not involved in this research project, no information was obtained on their levels of experience. This may constitute a confounding variable as it is possible that the MASTR-EMDR therapists may have been more experienced.

This study design included a follow-up assessment in order to assess the maintenance of gains. However, the follow-up evaluation only took place three months after treatment termination. This time period may not be sufficiently long to assess maintenance of gains. Kazdin and Weisz (1998) argue that many clinically referred problems are life-long. Therefore, long follow-up evaluations are needed to better understand change over time in order to clarify and nuance the interpretation of results.

The screening measure included a questionnaire that asked participants about their exposure to various traumatic events as well as the emotional impact of each event on them at the time of the event and at the present moment (Greenwald & Rubin, 1999). It would have been useful to assess participants' subjective opinion regarding the impact of the traumatic event on them at each subsequent evaluation. This would clarify whether the participants themselves judge that the treatment helped resolve the impact of the trauma on them.

Although this study found positive results for MASTR-EMDR among traumatized youth with CPs, the results do not prove an association between trauma and CPs. They rather suggest the use of this treatment package that incorporates trauma- and CP-focused elements. Initial analyses assessed the relationship between types of trauma exposure and CP outcome, yet the sample may have been too small and homogeneous for specific relationships to stand out. Longitudinal research would be necessary to examine the role of trauma in causing CPs. However, at the present time, as concluded by Farrington (2005), the extent that any risk factor predicts CP outcome is unclear. Nonetheless, addressing that risk factor may still have benefit in addressing a variety of nefarious outcomes.

Lastly, the majority of the sample was living in YPS facilities. Individuals living in these facilities have been found to present worse living and family situations than those living at home (Harden, 2004). As well, those placed in YPS facilities are more often than not placed numerous times (Staff, & Fein, 1995). Numerous placements are also associated with worse problems (Newton, Litrownik, & Landsverk, 2000). As the present study did not record the number of placements encountered by each adolescent and consequently, did not analyze this data, this too may confound results.

Future research

As mentioned previously, the current study examined MASTR-EMDR as a package treatment. In order to better understand the effects of each, it would be worthwhile to

study them in isolation. For example, it would be interesting to compare the effects of EMDR to MASTR-EMDR, MASTR to a routine treatment or MASTR with a different form of trauma resolution to MASTR-EMDR. These types of studies would be informative in gaining knowledge on the effects of each treatment modality. Moreover, comparing MASTR-EMDR to an empirically supported treatment such as cognitive behavioral therapy would be of interest as the most effective and efficient treatment should be utilized in this setting.

The challenging nature of a sample of CP youth demanded a thorough preparation for EMDR, leaving only four sessions for trauma resolution. More EMDR sessions may have resulted in greater gains as a larger number of the clients' traumatic memories could have been worked through. In addition, in MASTR, EMDR is introduced with recent minor upsetting events so that clients are introduced to EMDR under low stress, and highly traumatic events are only worked through afterwards. Therefore, it is possible that there was not enough time to work through some of the more intense traumatic memories.

Another interesting avenue for future research would be to assess differences in the effects of this treatment among youth who were exposed to different types of trauma in order to determine whether MASTR-EMDR is most effective for a particular type of trauma. Although all types of trauma have been associated with deleterious effects, various studies have distinguished between the consequences of different forms of

maltreatment (Trickett & McBride-Chang, 1995). Therefore, different treatments may be of more benefit for distinct types of abuse.

It would also be worthwhile to assess mediating or moderating variables that may play a role in treatment outcome. For example, several theorists highlight certain factors that mediate or moderate the relationship between trauma and CPs. Widom, Schuck, & White (2006) pinpoint the role of early aggression and problematic alcohol use. One of their findings is that problematic alcohol use mediates the relationship between childhood victimization and later violence among women. Mediating and moderating factors may also play a role in treatment outcome as they may indicate higher levels of pathology (e.g., it may be worthwhile to assess alcohol consumption in future research). An examination of these factors can help pinpoint youth who would be particularly suited for this treatment.

It would be interesting to add a parent module to the current version of MASTR-EMDR and assess whether it would lead to improved outcome. Clinicians and researchers of both CP and traumatized youth advocate adding parent modalities to the treatment of these youths in order to increase chances of parental support and minimize chances of parents' perpetuation of their children's problems (Cohen, Mannarino, & Deblinger, 2006; Kazdin, 2005; Stauffer & Deblinger, 1996). Furthermore, a manualized version of a MASTR parent component is now included in the newest version of the MASTR protocol and can be easily implemented (Greenwald, in press).

Conclusion

This study makes an important contribution to the development of a manualized (replicable) treatment approach that already had good empirical foundation but had not yet been tested as a package at anywhere near this level of rigor. Considering the promising results found in this abbreviated (for research purposes) treatment with this treatment-resistant population, the results can have considerable clinical and scientific value.

References

(Introduction and conclusion)

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Appendices